

DIRECTIONS
FOR THE
GENERAL CHARTS
OF THE
COAST OF NORTH AMERICA,
FROM HALIFAX
TO THE
GULF OF FLORIDA.

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NEW
DIRECTIONS FOR SAILING
ALONG
THE COAST OF
NORTH AMERICA
AND INTO ITS SEVERAL HARBOURS,
COMMENCING AT
HALIFAX IN NOVA SCOTIA,
AND INCLUDING
THE WHOLE NAVIGATION
TO
CAPE FLORIDA;

CAREFULLY COMPILED FROM
CAPTAIN HOLLAND'S SURVEYS AND JOURNALS, THE BOOKS
OF THE CUSTOM HOUSES OF HALIFAX AND BOSTON, AND
THE OBSERVATIONS OF MR. KNOX, BRANCH PILOT,
CAPT. PAUL PINKHAM, BRANCH PILOT, GOVERNOR
POWNALL, DR. FRANKLIN, &c. &c. AND THE
MOST EXPERIENCED MASTERS AND
PILOTS.

TO WHICH IS ADDED
A PARTICULAR DESCRIPTION
OF THE
COAST
FROM

NEW YORK TO ST. AUGUSTIN;

WITH COMPLETE
SAILING INSTRUCTIONS

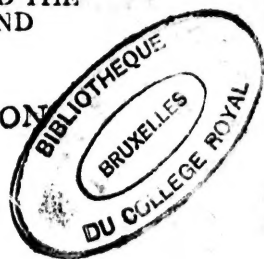
AND
USEFUL NAUTICAL TABLES AND REMARKS.

BY GEORGE WALKER,

MASTER IN THE COASTING AND WEST-INDIA TRADE OUT OF THE PORT OF
PHILADELPHIA, AND LATE LIEUTENANT AND COMMANDER
OF HIS MAJESTY'S GALLEY CORNWALLIS.

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(SUCCESSORS TO THE LATE MR. ROBERT SAYER.)



Just Published,
AND DEDICATED, BY PERMISSION TO
THE RIGHT HON. EARL SPENCER,
FIRST LORD COMMISSIONER OF THE ADMIRALTY.

A NEW AND ACCURATE
COLLECTION OF SURVEYS
OF THE
PRINCIPAL HARBOURS
ON
THE COAST OF
NOVA SCOTIA,
BETWEEN
HALIFAX AND CAPE SABLE,
AND BETWEEN
HALIFAX AND CAPE CANSO,
FORMING,
TOGETHER WITH A LARGE GENERAL CHART,
A COMPLETE
Nova Scotia and Cape Breton Pilot.
WITH
AN ENTIRE NEW BOOK OF SAILING DIRECTIONS;
By THOMAS BACKHOUSE,
LATE MASTER OF HIS MAJESTY'S SHIPS
THE THISBY, HUSSAR, AND ARGANAUT.

Taken with great Care and Attention, during a Period of Four Years.

Comprising Fifteen Charts, as follow:

- | | |
|---|--|
| I. General Chart of the Coast of Nova Scotia, Bay of Fundey, Cape Breton, &c. on <i>three large sheets.</i> | IX. Crow Harbour, South Side of Chedabucto Bay. |
| II. Harbour and River St. John, New Brunswick. | X. Inhabitant Bay and Harbour, at the South Entrance of the Gut of Canso. |
| III. Shelburne, or Port Roseway Harbour, in Nova Scotia. | XI. The Island of Cape Breton, with the Gut of Canso, and Chedabucto Bay. |
| IV. Lunenburg, or Mallagash, ditto | XII. Port Hood, commonly called Jeslico, on the N. W. Side of Cape Breton. |
| V. Halifax Harbour, ditto | XIII. St. Ann's Harbour, on the N. E. Side of Cape Breton. |
| VI. Country Harbour, ditto. Plate I. | XIV. Spanish River, or Sydney Harbour, on ditto, two Sheets. |
| VII. A continuation of ditto. Plate II. | XV. Louisbourg Harbour, on the S. E. Side of ditto |
| VIII. Canso Harbour, on the N. E. Part of Nova Scotia. | |

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A New Survey of St. John's Harbour, on the eastern Side of Newfoundland, by Francis Owen, Master of his Majesty's Ship Agincourt; dedicated by Permission to the Honorable William Waldegrave, Vice-Admiral of the Blue, and Governor of the Island of Newfoundland, &c. &c. Price 3s

CONTENTS.

PART THE FIRST

	Page
For sailing along the Coast of Nova Scotia - - - - -	1
Instructions for going into Halifax Harbour - - - - -	2
Directions for sailing into Halifax Harbour, extracted from printed Directions in the Custom-house at Halifax - - - - -	2
Directions from Sambro Head, near the Entrance of Halifax Harbour, to Cape Sable - - - - -	2
General Remarks - - - - -	2
Liverpool Bay - - - - -	4
Gambier Harbour, or Port Matoon - - - - -	4
Port Roseway, alias Port Campbell or Port Rafoir - - - - -	4
Port Amherst - - - - -	5
Port Haldimand, or Port la Tour - - - - -	5
Barrington Bay, on the S. W. Coast of Nova Scotia - - - - -	5
Isle of Sable - - - - -	6
Description of the Coast from Cape Sable to the entrance of the Bay of Fundy - - - - -	7
Seal Isles, in the Bay of Fundy - - - - -	7
Bay St. Mary - - - - -	8
Grand Passage - - - - -	8
Annapolis Royal - - - - -	9
From Cape Sable to St. John's River, in the Bay of Fundy and Province of New Brunswick - - - - -	9
Directions from Cape Sable to Cape Cod and Plymouth Harbour, in New England - - - - -	9
Calhe's Ledge - - - - -	9
Plymouth Harbour - - - - -	10
Directions from Cape Cod to Boston - - - - -	10
Directions for sailing in and out of Boston Bay, from Cape Cod and Cape Ann, by Mr. Knox, Branch Pilot - - - - -	11
To work into Boston Bay - - - - -	11
Remarks by Ofgood Carlton - - - - -	11
Sailing Directions for the Harbour of Boston, &c. - - - - -	11
To sail in the Night, or turn within the Light-house Anchorage - - - - -	12
To sail through the best Channel up to Boston - - - - -	12
To turn into Nantasket Road - - - - -	13
To turn from Nantucket Island to Castle Island, and thence to Boston - - - - -	13
Marks for the Rocks and Shoals in sailing into the Harbour - - - - -	13
Directions for sailing from Cape Cod to Holme's Hole in Martha's Vine- yard, extracted from those of Capt. Paul Pinkham, Branch Pilot - - - - -	14
From Holme's Holme to Cape Cod - - - - -	15
Bearings and Distances of Nantucket Shoals from the Light-house - - - - -	16
Tides - - - - -	16
Directions for going between Martha's Vine-yard and the Main, and thence through the shoals to the eastward, having made Block Island - - - - -	16
Observations on the Gulf Stream - - - - -	18
Farther Observations on the Gulf Stream, by Governor Pownall, Dr. Franklin, &c. &c. - - - - -	18
The Current of the Gulf Stream, as it sets along the New England Coasts - - - - -	19
Directions from Block Island to Rode Island Harbour - - - - -	19
Directions for sailing along the Coast of New York, from Block Island to Gardener's Bay - - - - -	20
	Instructions

CONTENTS.

	Page
Instructions for going between Long Island or Sandy Point, and thence up to New York	21
Directions for sailing into the Harbour of New York	22
The East River	23
Long Island Sound	23
For Delaware Bay	24
Astronomical Observations	25

PART THE SECOND.

Directions for Cape Henry in Virginia, including Chesapeake Bay	26
From Cape Henry or Lin Haven Bay to York River	26
From New Point Comfort to Potowmack River	27
Directions for James River	28
Particular Directions for York River	28
Directions for going into Patuxent River	29
Cape Hatteras	30
Cape Fear Light House	31
Remark	31
To Masters of Vessels	32
Directions for the Coast of North Carolina, coming in from Sea	32
From Charlston Bar to Port Royal	33
St. Helena Sound	34
Port Royal Harbour	34
Astronomical Observations	35
Observations on the Winds, &c. on the Coast of South Carolina	36
St. Mary River, or Prince William's Sound, called also Amelia Sound	37
Harbour of St. Augustine	37
A Table of the Principal Courses and Distances from Delaware River to Cape Florida	39
Observation	39

PART THE THIRD.

BY GEORGE WALKER.

Sailing Instructions from New York to the Capes of Delaware or Philadelphia	40
Cape Henlopen, called also Cape James, to the Capes of Virginia	41
Cape Henry to Cape Hatteras	41
Remarks on the dangerous Storms of Thunder so frequent in the Summer Season off Cape Hatteras, and on the Southern Coast of America	42
Instructions for sailing from Cape Hatteras to Cape Lookout	42
Cape Lookout to Cape Fear	43
Cape Fear to Cape Roman and Charleston Bar	43
Charleston Bar to Tybee	44
Tybee to St. Simon's	44
St. Simon's to St. Mary's	44
St. Mary's to St. John's	45
St. John's to the Bay of Augustine	45
To anchor in the Bay of St. Augustine.—Observations on the Weather and the Gulf Stream	45
Directions for a speedy Passage from St. Augustine to New York, along the American Coast	46
A Table of the Latitudes and Tides from New York to St. Augustine.—	47
Ditto of the Setting of the Tides along that Coast	

NEW

Page
up to
- 21
- 22
- 23
- 24
- 25

NEW

DIRECTIONS FOR SAILING

ALONG

THE COAST OF

NORTH AMERICA.

Part the first.

THE COAST FROM HALIFAX.

TO THE

DELAWARE RIVER AND PHILADELPHIA.

THE COAST OF NOVA SCOTIA.

Instructions for going into Halifax Harbour.

SAILING from the westward, in order to avoid the ledges and breakers around the *Light-house Island*, approach it not nearer than $2\frac{1}{2}$ miles, and continue your course easterly, until you bring the S. E. Red Head of Cornwallis Island and Chebucto Head in one: then steer N. 10 deg. east in that direction, observing to be careful of the *Bell*, a sunken rock, which lies E. N. E. 410 fathoms from Cape Sambro, and south 5 deg. west, 800 fathoms from Chebucto Head. The middle red cliff of Cornwallis Island on with Chebucto Head, will lead you clear on the east side of it, and out of danger. In passing Chebucto Head, give it a birth of 100 fathoms, you may thence, keeping George's Island a sail's breadth open with Sandwich Point, steer through the east of the channel up the harbour, and leave the Litchfield and Mars sunken rocks on your west side, and the shoals extending from Cornwallis Island on your east. When you come as high up as Sandwich Point, keep that shore on board until you are above Mauger's Beach, or Meagery's Beach; then stand over to the eastward to avoid Point Pleasant Flatts, taking care, in order to keep clear of the shoals N. N. W. 2 deg. north, between 3 and 4 cables length distant from the N. W. end of Cornwallis Island, that you do not shut in the house at the extremity of Mauger's Beach with the Island. On both sides of George's Island the water is deep to the anchoring ground.

Coming from the eastward, steer for Chebucto Head, until you open George's Island a ship's breadth with the N. W. end of Cornwallis Island, and run up for the harbour as above directed.

CATCH HARBOUR has a bar across its entrance with nine feet at low water, and it breaks when the wind blows upon the shore: It is frequented by small vessels only.

Directions

*Directions for Sailing into Halifax Harbour, extracted from printed
Directions in the Custom-House at Halifax.*

SAMBRO ISLAND and Light-house is in Latitude 44 deg. 30 min. N. and Longitude 63 deg. 35 min. west of London.

From the westward, bring the light to bear N. E. if it bears more easterly, stretch to the southward till it bears N. E. (and as much more northerly as you please, there being no shoal or ledge to the southward) then keep it open on your larboard bow, give it more than a mile and half birth, as much more as you please.

Note, the western ledges lie from the Light S. W. distant two miles the other W. S. W. about one league; the eastern ledges lie in a range nearly, some above water, the outermost one mile and a half from the Light, bearing from it E. N. E.

When the light bears north, distant about two miles, run N. E. four miles, then north will carry you to Chebuco Head at a proper distance clear of all danger.

When abreast of Chebuco Head, run N. half W. for the south point of George's Island.

When within half a mile of George's Island, you may enter the harbour west of it, in twelve fathoms, or east of it in fifteen fathoms water.

In passing between Sandwich Point, and Meagery's Beach, run rather nearest the point to shun a shoal which runs off S. W. from the beach.

There is also a shoal lying one mile south of Sandwich Point.

Coming from the eastward. Run for the light, and you cannot fail seeing Chebuco Head, as you open Halifax Harbour, the light being four miles distant from the Head, to the S. W. of it.

Note, these Directions are agreeable to the common compass, varying 13 deg. westerly, at the time they were published: But as the variation is continually altering, it is best to find it by an azimuth, amplitude, or any practicable method as often as possible.

*Directions from Sambro Island, near the entrance of Halifax Harbour,
to Cape Sable.*

GENERAL REMARKS.

FROM Halifax, westward, to Charlotte Bay, the country from the offing is very rocky and broken; the shore is steep-to, and bounded with white rocky cliffs. The high lands of Haspotageen, on the east side of Mecklenburg Bay, are very remarkable; from whence proceeding westward, the rocks which surround the shore are black, with some banks of red earth. Between Cape le Have (which is a remarkable promontory, bald on the top, with a red bank under it facing the south-westward) and Port Jackson, there are some hummocks within land, about which the country appears low and level from the sea; and on the shore white rocks and stony beaches, with several low bald points; from whence to Port Campbell the land is woody. About the entrance of Port Haldimand, and within land, are several barren spots, which from the offing are easily discerned; thence to Cape Sable the land appears level and low, and on the shore are some cliffs of exceeding white sand, particularly in the entrance of Port Haldiman, and on Cape Sable, where they are very conspicuous from sea.

From Cape Sable, sailing up the Bay of Fundy, you pass the Seal Isles, and Tusket Bald Isles, the latter of which are small green isles with red banks of earth; the shore between these and Cape St. Mary is chiefly surrounded with banks of red earth, and the country within appears even and well clothed with wood.

The

The coast from the south part of Long Island to the Gut of Annapolis is nearly straight; the shore is bound with high rocky cliffs, above which is a range of hills that rise to a considerable height, their tops appear smooth and unbroken, except near the Grand Passage, Petit Passage, Sandy Cove, and Gulliver's Hole, where those hills sink in valleys. From the Gut of Annapolis up the bay to Cape Split, the coast continues straight, and nearly in the same direction, with few rocky cliffs near the Gut, and many banks of red earth under high lands, which appear very even. In the Gut, leading into the Basin of Mines, from Cape Split to Cape Blowmedown, and from Cape Dore, on the north side of Partridge Island, the land rises almost perpendicular from the shore to a very great height. Between Cape Blowmedown and Partridge Island, there is a great depth of water, and the stream of the current, even at the time of neap tides, does not run less than 5 or 6 knots.

Cape Dore and Cape Chignecto are high lands with very steep cliffs of rocks and red earth, and deep water close under them. You have nearly the same kind of shore to the Head of Chignecto Bay, where very extensive flats of mud and quick-sand are left dry at low water. The tides come in a *Bore*, and rush in with great rapidity; they are known to flow at the equinoxes from 60 to 70 feet perpendicular.

The Isle Haute, or Hauto, is remarkable for the great height and steepness of the rocky cliffs, which seem to overhang on the west side.

From Sambro Island to the entrance of Le Have, the course is W. $\frac{1}{2}$ S. and the distance 11 leagues; between them are Charlotte's or Margaret's and King's Bays. The southernmost point of Holderness Island, which is the S. W. point of the entrance of Charlotte's Bay, lies in 44 deg. 34 min. 25 sec. north latitude, and 62 deg. 55 min. 30 sec. W. longitude from Greenwich. In this bay are several harbours fit to receive first rate ships. The high lands of Aspotagoen are very remarkable at a considerable distance: in the offing, the shores on the entrance are high white rocks, and steep-to; off the west side coming in, you perceive the Dog, (a ledge almost covered and surrounded with breakers) which lies S. by E. 3 deg. east, near $1\frac{1}{2}$ mile distant from the south end of Holderness Island, and W. 3 deg. south, from the southernmost point of Inchkeith Island. You have good channels on both sides of the small island, which shelters the S. W. harbour. About 5 miles S. $\frac{1}{2}$ W. from the point of land which separates Charlotte and King's Bays, lies GREEN ISLAND; it is small, and lies 7 leagues W. N. W. $\frac{1}{2}$ W. from Sambro Island, in latitude 44 deg. 27 min. 35 sec. N. and 64 deg. 58 min. 30 sec. W. longitude from Greenwich.

KING'S BAY is parted from Charlotte Bay by a neck of land about 3 miles over, whereon the high lands of Aspotagoen stand, whose appearance in three regular swellings, render it very remarkable at a great distance in the offing. Between the many islands in this bay, are several good channels, leading up into fine harbours. The outer breaker lies N. N. E. $1\frac{1}{2}$ mile distant from the S. E. end of Duck Head, and W. 7 deg. south $3\frac{1}{4}$ miles distant from the N. W. point of Green Island; from this about 3 miles northward, lies the BULL, (a blind rock visible at $\frac{1}{2}$ ebb) bearing W. S. W. 1200 fathoms distant from the S. W. end of Flatt Island, S. S. E. $\frac{1}{2}$ east, $2\frac{1}{2}$ distant from the west point of Royal George Island. Farther up W. by N. 3 deg. north, 400 fathoms distant from west point, lies Rocky Shoal; within which, and Royal George Island, is deep water. The Coachman is a blind ledge within Mecklenburgh Bay, visible at low water only. The east end of Royal George and Flatt Islands in one, will lead you clear on the E. side of it. The west end of Iron-bound Island, open with the west point of Little Tancook Island, will clear you on its S. side; and Governor's Island on with west point, carries you safe on its N. side.

From the entrance of Le Have to Hope Island, the course is S. W. by W. $\frac{1}{2}$ W. and the distance about 11 leagues between them, lie Port Jackson, Liverpool, and Gambier Harbours.

PORT JACKSON. Admiralty Head lies in 44 deg. 10 min. 30 sec. N. and 64 deg. 29 min. 0 sec. W. longitude from Greenwich. The land to the eastward of this port is remarkably broken and hilly. The outer breaker on the starboard side, without the

the entrance S. by E. above $1\frac{1}{2}$ mile from Glover Isle, and S. by E. about $1\frac{1}{2}$ mile from Admiralty Point.

The course up the harbour is N. $\frac{1}{2}$ E. and when Collin's Isle (on the west shore) bears W. by S. and Alecia River just opening of Point Lucy, you may steer up N. W. to anchor, keeping nearest to the eastern shore.

Liverpool Bay.

Bald Point, on the S. W. of the entrance of LIVERPOOL BAY, lies in 44 deg. 4 min. 0 sec. N. latitude, and 64 deg. 37 min. W. longitude from Greenwich.

This Bay has room sufficient for turning to windward. The deepest water is on the western shore. *Bald Point* at the entrance is bold-to, and is remarkable, having no trees on it. Schooner Cove, on the N. E. side of the bay, affords good shelter from sea winds, in 3 fathoms muddy bottom. At high water, vessels of two and three hundred tons may run up over the bar into the harbour.

Gambier Harbour, or Port Matoon.

THE fourth Point of Matoon Island, at the entrance of the harbour, lies in 43 deg. 57 min. 37 sec. N. latitude, and 64 deg. 42 min. 0 sec. W. longitude from Greenwich. On both sides of the Portsmouths Rocks (which are always above water) you have deep channels, and of sufficient width to turn into the harbour, with a leading wind. Steer N. W. until you bring Saddle Island to bear S. W. by S. and then haul up S. W. to the anchoring ground. Small vessels may pass on the west side of Matoon Island, between the *Bull* and the western shore.

From *Hope Island* to the entrance of *Port Mills*, or ragged Island Harbour, the course is W. S. W. $\frac{1}{4}$ W. and the distance $5\frac{1}{2}$ leagues; between them lie Stormont River, Port Mansfield or Port Herbert, and Penton River.

Point Herbert lies in 43 deg. 51 min. 10 sec. N. latitude, and 64 deg. 51 min. 20 sec. W. longitude from Greenwich. Green Island, without the entrance of Port Herbert, is remarkable from the westward, having no trees upon it. The channel leading to the anchoring ground, in 3 fathoms, is not more than 60 fathoms wide between Bridges Rocks and Stoney Reach. Above are flats, with narrow winding channels through the mud.

From the entrance of Port Mills to *Port Haldimand*, the course is S. W. by W. $\frac{1}{2}$ west, and the distance about 6 leagues; between them lie Buller Bay, Port Campbell or Port Roseway, and Port Amherst.

Port Roseway, alias Port Campbell, or Port Rasoir.

CAPE ROSEWAY at its entrance, lies in 43 deg. 39 min. 50 sec. N. latitude, and 65 deg. 12 min. 30 sec. W. longitude from Greenwich. This cape is a high cliff of white rocks, the top of which is partly without wood: the west side of Roseneath Island is low. South $4\frac{1}{4}$ miles distant from the cape, lies the *Jock*, (a rocky reef with no more than 6 feet water) between which and the Island, you have 4 and 5 fathoms. The *Bell* (a rock always visible and bold-to) lies S. E. 3 deg. S. 1100 fathoms distant from Sunbridge Point, and N. E. by E. above two miles from Cape Roseway, and in the fair way from the eastward into the harbour. The channel is clear within a cable's length of both shores up to the anchoring ground, in a mud bottom. Sandy Flat, on the east shore at the narrows, has 5 fathoms water close to. Between Roseneath Island and the western shore, it is quite shoal.

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Port Amherst.

CAPE NEGRO ISLAND, at the entrance of Port Amherst, lies in 43 deg. 33 min. 5 sec. N. latitude, and 65 deg. 17 min. 50 sec. W. longitude from Greenwich. It divides the entrance into two passages; is very low about the middle, and appears like two islands. The cape itself is remarkably high, rocky, and barren. Coming from the westward, in hauling round Point Jeffery, (to avoid the ledges, blind rocks, and shoals, extending easterly from the western shore) shape your course N. N. E. towards the cape, giving the Savage Rocks a birth of three cables length, until you open Davis's Isle (the westernmost and largest isle at the head of the harbour) a sail's breadth with Port William; and run up in that direction, observing to keep clear of a sunken rock, which lies E. S. E. from Point William, about 300 fathoms from the shore. Fishery Beach is bold-to. To sail up through the east passage, keep Gray's Rocks on board, and steer up N. W. for Point John, until you see across the Isthmus in the middle of Cape Negro Island, and have passed the Budget, (a blind rock, which lies in a direction between the Whales-back and Gray's Rocks) on both sides of which there is deep water; whence haul over to the westward, keeping along the shore of the island to avoid the shoal, which extends half the distance over from Point John towards the island. When you have opened the small islands at the head of the bay, shape your course N. N. W. to the anchoring ground.

Port Haldimand, or Port la Tour.

BACCARO POINT, at the entrance of this port, lies in 43 deg. 29 min. 55 sec. N. latitude, and 65 deg. 24 min. 25 sec. W. longitude from Greenwich. To sail into this port, coming from the westward, continue your course easterly, until you have Brehem Isle a ship's length open to the eastward of North Rocks: thence you may steer northerly for Isle George, and when you come up within the distance of two cable's length from its south end, incline to the westward, in a direction with the western extremity of Pond Beach, until you open Prospect House, on the north side of the northernmost Mohawk Ledge, and then haul into anchor in 3 fathoms, mud bottom.

From the entrance of Port Haldimand to Cape Sable, the course is W. $\frac{1}{4}$ S. and the distance 10 miles; between them lies Barrington Bay.

Barrington Bay, on the S. W. Coast of Nova Scotia.

THE southernmost point of Cape Sable Island, at the entrance of this bay, lies in 43 deg. 26 min. 0 sec. north latitude, and 65 deg. 34 min. 20 sec. west longitude from Greenwich. There are extensive flats towards the head of this bay, and the channel as you draw up, grows so narrow, that it requires a leading wind, to wind through it to the anchoring ground. The west passage, on the north side of Cape Sable Island, is used by small vessels only, and is not safe without a commanding breeze, on account of the tides setting immediately upon the rocks which lie scattered within it. Sailing through the narrows, keep nearest the southern shore; then steer right out south west, until Green Island opens with Point Lawrence, whence shape your course more southerly, in order to clear the Hazards on the north shore.

THE BRAZIL ROCK lies 5 miles S. $\frac{1}{4}$ W. from the Point of land, which separates the entrance of Port Haldimand from Barrington Bay, and $6\frac{1}{2}$ miles S. E. by E. from Cape Sable; on this rock there are 10 feet at low water, between it and Cape Sable there are 17 fathoms.

CAPE SABLE is a low woody island, at the south eastern extremity of a range of sand-cliffs, and lies in 43 deg. 26 min. 0 sec. N. latitude, and 65 deg. 34 min. 30 sec. W. longitude from Greenwich. It is very remarkable at a considerable distance in the offing, the top of which is 120 feet above the level of high water mark. A spit runs out southerly, with breakers, from the westernmost sand-cliff. Here the tide runs at the rate of three, and sometimes four knots; and when the wind blows fresh, a rippling extends from the breakers southerly, to the distance of near three leagues, and shifts its direction with the tide; with the flood it is more westerly, and inclines to the eastward with the ebb. This ripple may be dangerous to pass through in a gale, as it has all the appearance of high breakers, although there is no less than 8, 10, 12, and 20 fathoms water, rocky ground. N. E. $3\frac{1}{2}$ miles distant from Cape Sable, are two sand cliffs, remarkable from the eastward.

Isle of Sable.

The southernmost part lies in 44 deg. 0 min. 0 sec. N. latitude, the west end lies in 60 deg. 32 min. 30 sec. W. longitude from Greenwich. On the days of the new and full moon, it is high water along the south shore of the island at half an hour after 8 o'clock, and it flows till half an hour past 10 o'clock on the north side, and till near 11 o'clock in the pond. Common spring tides rise seven feet perpendicular, and neap tides four. The flood sets in from the S. S. W. at the rate of half a mile an hour, but it alters its course, and increases its velocity near the ends of the island. At half flood, it streams north, and south at half ebb, with great swiftness across the north-east and north-west bars; it is therefore dangerous to approach without a commanding breeze. The north-east bar runs out E. N. E. about 4 leagues from the eastern extremity of the island, all which is very shoal, having in few places more than 2, 3, or 4 fathoms water, whence it continues E. and E. by S. deepening gradually to 12, 15, and 18 fathoms water, at the distance of 8 or 10 leagues, and shapeth to the S. and S. E. sloping gently to 60 and 70 fathoms water. To the northward and eastward it is very steep, and in a run of 3 miles, the water will deepen to 130 fathoms. Abreast the body of the isle, the soundings are more gradual. The shoal ground of the north-west bar shapeth to the westward, and deepens gradually to 70 fathoms water, at the distance of 20 or 25 leagues from the isle; and winds easterly and southerly, until it meets the soundings of the north-east bar. The quality of the bottom in general is very fine sand, with a few transparent stones; to the northward, and close to the north-east bar, the sand is mixed with many black specks; but near the north-west bar, the sand has a greenish colour. The north-east bar breaks in bad weather, at the distance of 8 and 10 leagues from the island, but in moderate weather a ship may cross it, at 5 leagues distance, with great safety, in no less than 8 or 9 fathoms water; and if the weather is clear, the island may be seen thence very distinctly from a boat. The north-west bar breaks, in bad weather, at 7, and sometimes 8 miles from the island, but when the sea is smooth, ships may cross it within the distance of 4 miles, in 7 fathoms water. [These bars are described as they were found; but as they are composed of shifting sands, repeated storms, and the violence of the sea may, in the course of years, considerably alter their form or extent.] Along the north and south sides of the island are many spits of sand, extending nearly parallel, and within a mile from the shore. Vessels may anchor on the north side of the island between the spits, and not be liable to be driven off by southerly winds. On the south side it is boldest off the body of the island, having 10 or 12 fathoms water, within a mile of the shore; but towards the bar it is more shoal and dangerous to approach for the currents, which are uncertain; being, in a great degree, influenced by the winds which have preceded. The surf beats continually on the shore, and in calm weather is heard several leagues off. Landing on this island with boats is practicable on the north side, after a continuance of good weather only. The whole island is composed of fine white sand, much coarser than any of the soundings about it, and intermixed with small transparent stones. Its face is very broken, and hove up in little hills, knobs, and cliffs, wildly heaped

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heaped together, within which are hollows and ponds of fresh water; the skirts of which abound with cranberries the whole year, and with blue-berries, juniper, &c. in their season; as also with ducks, snipes, and other birds. This sandy island affords a great plenty of beach grass, wild peas, and other herbages, for the support of the horses, cows, hogs, &c. which are running wild upon it. It grows no trees, but abundance of wreck, and drift wood, may be picked up along shore for fuel. Strong northerly winds shift the spits of sand, and often even choak up the entrance of the pond, which usually opens again by the next southern blast. In this pond are prodigious numbers of seals, and some flat-fish, eels, &c. and, on the south-west side, lies a bed of remarkable large muscles and clams. The south shore is between the cliffs so low, that the sea breaks quite over in many places, when the wind blows on the island. The Ram's Head is the highest hill on this island: it has a steep cliff on the north-west, and falls gently to the south-east. The Naked Sand Hills are 146 feet perpendicular height above the level of high water mark, and always appear very white. Mount Knight is in the shape of a pyramid, situated in a hollow between two steep cliffs. Mount Lutterel is a remarkable hummock on the top of a large swelling in the land. Gratia Hill is a knob at the top of a cliff, the height of which is 126 feet perpendicular above high water mark. The Vale of Misery is also remarkable as is Smith's Flag-Staff, a large hill, with a regular ascent every way. From the offing, the south side of the island, appears like a long ridge of sandy cliffs, lessening towards the west end, which is very low.

The NOVA SCOTIA BANKS extend nearly 70 leagues, in a westerly direction. From the Isle of Sable, they are from 20 to 25 leagues wide, and their inner edges are from 14 to 18 leagues off shore. They are intersected by narrow winding channels, (the bottom of which is mud) running N. W. and S. E. Between these banks and the shore, are several small inner banks, with deep water and muddy bottom. The water deepens regularly from the Isle of Sable, to the distance of 22 leagues, in 50 fathoms fine gravel; thence proceeding westward, the gravel becomes coarser. At the distance of 23 leagues, and south from Prospect Harbour, you have from 30 to 35 fathoms water, large stones; and continuing westward to the western extremity of the banks, the soundings are rocky and shoal to 18 and 15 fathoms. Cape Sable bearing N. by W. distant 15 leagues.

The south-west extremity of *Bank Quere* lies 26 miles E. N. E. $\frac{1}{2}$ N. from the east end of the Isle of Sable. This bank extends E. by N. 35 leagues, and is near 8 leagues in width; its shoalest part is about 5 leagues from its eastern extremity, in 16 and 18 fathoms water, slimy sand and clams; from whence it deepens regularly every way to 60 and 70 fathoms, towards the edges of the bank. This bank is steep-to, and from its soundings on the north side, you fall immediately in 90 or 100 fathoms water, black mud; and on the south side, in 120 fathoms.

BARON BANK, the east end of which lies 9 leagues S. W. by W. from Cape Sable, and extends W. S. W. $\frac{1}{2}$ W. 7 miles, is about 4 miles broad, and has 20 and 21 fathoms water on it. Between this bank and Cape Sable, there are 33 fathoms. The tide flows here on the full and change of the moon at 8 o'clock.

Description of the Coast from Cape Sable to the Entrance of the Bay of Fundy.

Seal Isles, in the Bay of Fundy.

THE southernmost point of the southern Seal Isles lies in 43 deg. 25 min. 25 sec. N. latitude, and 66 deg. 0 min. 35 sec. W. longitude from Greenwich, and bears from Cape Sable W. by N. about 7 leagues; between them there are 17 fathoms water. About $3\frac{1}{2}$ miles S. $\frac{1}{2}$ W. from the S. W. part of the south Seal Isle, and west 7 leagues from Cape Sable, there is a rock above water, which appears to be very smooth. Between this rock and the south Seal Islands, there are 9 fathoms water. Off the west side of the island, there are two small rocky islands; between them and the Seal Islands, there are 2 and 2 fathoms water.

Between the south and north Seal Islands, there is a channel of about $2\frac{1}{2}$ miles wide, with 15 fathoms water in it. In going through this channel, you should keep nearer to the south than to the north island, because there is a shoal lies off about $\frac{1}{2}$ of a mile from the north island, on which there are 3 fathoms at low water. The course through this channel is about N. W.

GANNET ROCK, a part of which is dry at low water, lies west, between 4 and 5 miles distant from the south-westernmost of the Tusket Isles, on the S. E. shore of the Bay of Fundy, in latitude 43 deg. 40 min. 40 sec. N. and 66 deg. 9 min. 45 sec. W. longitude from Greenwich, and 13 miles N. $\frac{1}{2}$ W. from the S. W. part of the south Seal Island, and 8 miles S. by W. $\frac{1}{2}$ W. from Cape Forchu. About 5 miles W. $\frac{1}{2}$ S. from the Gannet Rock, 14 miles N. N. W. $\frac{1}{2}$ W. from the S. W. part of the South Seal Island, and 11 miles S. W. $\frac{1}{2}$ S. from Cape Forchu, there is a ledge of rocks, which appear about half ebb. Between the South Seal Island and the Gannet Rock; there are from 8 to 20 fathoms water; between the Gannet and Cape Forchu, there are 23, 28, 16, and 14 fathoms.

CAPE FORCHU lies in 43 deg. 51 min. 30 sec. N. latitude, and 60 deg. 10 min. 30 sec. W. longitude from Greenwich: is very remarkable, being rocky, barren, and high. S. $\frac{1}{2}$ W. off the entrance of the harbour, lies Bagshot, (a blind rock, which is dry at low water, and runs shoal near half a mile to the southward). In sailing into the harbour, you may pass on either side of it, and running up W. N. W. as you approach the narrows, keep close to the west shore, there being a sunken rock in the fair way. There are two more close together as you haul around the beach to the eastward (one of these, the easternmost) appears at low water. The best channel is to the northward of them.

The LURCHER, a sunken ledge, lies 17 miles N. N. W. from the Gannet Rock, 11 miles N. W. $\frac{1}{2}$ W. from Cape Forchu, 10 miles S. by W. from Cape St. Mary, and 14 miles S. by W. from the south point of Bryer's Island. Between Cape Forchu and the Lurcher, there are 28, 38, and 14 fathoms water; and between the Lurcher and Bryer's Island, there are from 17 to 42 fathoms.

TRINITY LEDGE consists of three stones, which are left dry at low water; it lies 5 miles N. E. by E. from the Lurcher Ledge, 11 miles N. N. W. $\frac{1}{2}$ W. from Cape Forchu, 10 miles S. W. by W. from Cape St. Mary, and 14 miles S. by W. from the south point of Bryer's Island. Between Cape Forchu and Trinity Ledge there are from 12 to 24 fathoms water; between the Ledge and Cape St. Mary, there are 18 fathoms; between the former and Bryer's Island, there are 42 fathoms; and along the shore, between Cape Forchu and Cape St. Mary, there are 11 and 12 fathoms, Cape St. Mary bears from Cape Forchu N. by E. $\frac{1}{4}$ E. distant 16 miles.

Bay St. Mary.

From Cape St. Mary upwards into the Bay, the south shore is low, and runs out in sandy flats, for near $\frac{1}{2}$ of a mile. The north shore is surrounded by high steep cliffs, with deep water close under them. Mid-channel, and about two-thirds up the bay, lies a rocky bank, with 4 and $4\frac{1}{2}$ fathoms of water; and on each side of which, are channels of twelve and 15 fathoms, mud bottom. The entrance of the River Sissibou is shoal, and within has a narrow channel of 2 fathoms water. Opposite to Sissibou, lies Sandy Cove, where vessels, when it blows hard, may ground safe on mud, and be sheltered from all winds.

Grand Passage:

THE south entrance of this passage lies 9 miles N. N. W. $\frac{1}{2}$ W. from the south part of Cape St. Mary; between them there are from 14 to 22 fathoms. The Grand Passage lies between Bryer's Island and the S. W. end of Long Island; and the Petit Passage lies at the N. E. end of Long Island, about 8 miles distant from the Grand Passage. About 2 miles S. W. from the S. W. part of Bryer's Island, lies Black Rock; there are 16 fathoms water between Black Rock and the S. W. point

point of the island, the water is shoal. About 3 miles N. W. by W. from the north entrance of the Grand Passage, is the North-west Ledge. The widest and deepest channels for ships that come from the southward, for the Bay of Fundy, is between the North-west Ledge and the West Seal Isles: it is nearly 6 leagues wide. There is also a channel between Great Manan Island and the point of the main land to the westward of it: This channel is about 4 miles wide.

MOUNT DESERT ROCK lies 26 leagues N. W. by W. from the South Seal Island; 17 leagues W. S. W. from the West Seal Isles: 7 leagues E. $\frac{1}{2}$ N. from Wooden Ball Rock; and 12 leagues E. $\frac{1}{2}$ N. from Manheigen Island.

Annapolis Royal.

THE gut leading into the basin of Annapolis Royal, lies in 44 deg. 45 min. 30 sec. N. latitude, and 65 deg. 46 min. 30 sec. W. longitude from Greenwich. The shore on both sides, without the gut of Annapolis, is iron-bound for several leagues. From Pettit Passage, there is a range of hills, rising gradually to a considerable height, to the entrance of the gut, where it terminates by a steep fall. Here you have from 25 to 30 and 40 fathoms of water, which, as you draw into the basin, shoals quick to 10, 8, and 6 fathoms, muddy bottom. The ebb and flood stream through the gut at the rate of five knots, and cause several whirlpools and eddies. The truest tide is on the eastern shore, which is so bold-to, that a ship might rub her bowprit against the cliffs, and be in 10 fathoms water. Point Prim runs off shoal about 30 fathoms. Ships may anchor on the east side of the basin, or run up towards Goat Island; observing, when within the distance of half a mile from it, to stretch two thirds of the way over to the larboard shore, until past the island, which is shoal all round; and thence to keep mid-channel up to the town.

From Cape Sable to St. John's River, in the Bay of Fundy and Province of New Brunswick.

ON the west shore of St. John's River's entrance, is Point Maspeck, which lies in 45 deg. 18 min. 25 sec. N. latitude, and 65 deg. 58 min. 35 sec. W. longitude from Greenwich. This river has sufficient depth of water for large ships, as far as the Falls, whence it continues navigable 80 miles up into the country, for vessels of 100 tons. At times of great freshes (which generally happen between the beginning of April and the middle of May, from the melting of the snow), the Falls are absolutely impassable to vessels bound up the river, as the tide does not rise to their level.

Directions from Cape Sable to Cape Cod and Plymouth Harbour, in New England.

THE course is W. by S. and the distance 54 leagues: in steering this course, you will pass about 12 leagues to the southward of CASHE'S LEDGE. This ledge lies 41 leagues W. by N. from Cape Sable; 18 leagues S. W. by W. from Mount Desert Rock; 10 leagues S. $\frac{1}{2}$ W. from Manheigen Island; 15 leagues E. N. E. from Thatcher's Island, off Cape Ann; and 19 leagues N. E. by N. from Cape Cod. *Vide*, the following description of this ledge, by the master of his Majesty's Sloop Beaver.

Cashe's Ledge,

"I took my departure from Thatcher's Island, about 2 leagues to the eastward of Cape Ann. The island bore north from me distant 3 miles. From this bearing I steered E. $\frac{1}{2}$ N. with a fair wind 65 miles, and fell in with the bank where
Cashe's,

Cashe's Ledge is, about 2 leagues to the northward of the shoal, in 60 fathoms water; the foundings were a hard black clay. This bank extends from north to south 7 leagues, and from E. to W. 2 leagues. In the middle of the bank is the shoal mentioned: its length and breadth is about half a mile. It is rocky, and the foundings very irregular, having from 10 to 4 fathoms water in the length of a boat. You will have 17 fathoms water within a cable's length of it, deepening as you stand from it, to 90 fathoms. As you approach the bank, you found in from 60 to 35 fathoms, brown sand, with black stones and broken shells; then in 30 fathoms, it grows rocky. The current on the ledge is exceeding rapid and unaccountable. If the wind blows strong, any vessel would founder, although the should not strike on it. The latitude of the ledge, by 4 days good observation, is 43 deg. 1 min. 0 sec. N. Note, as this is a very dangerous shoal, all ships should endeavour to keep clear of it. On the shoalest part of these are only 12 feet at low water.

Plymouth Harbour,

This harbour lies from *Cape Cod* about 7 leagues W. it may be known by a round hummock, lying on the north side of the harbour called the *Gurnet*; and on the south side, by a high double land called the Monument: this harbour lies west; as you go in, you must keep near to the *Gurnet* side, for the Monument side is full of shoals and quicksands, which dry in several places; on the *Gurnet* or north side, there is a fair channel, in which you may ride safe with every wind, except an easterly wind. Should an easterly wind happen to blow so hard as to force you from your anchor, you must run further up the harbour, and anchor within the *Sandy Island*, called *Browne's Island*. In running up, you must be careful to avoid the sands, which lie on both sides; they dry at low water. The ground in this harbour is generally foul, especially in the lower or outer part.

Directions from Cape Cod to Boston.

From about a league off *Cape Cod*, your course to *Boston Light-house* is W. N. W. and the distance 16 leagues. When you make the light, with a fair wind, bring it to bear W. by N. or W. N. W. then steer for it, until you are within two cables length distance: come no nearer to it, but run in until it bears N. by E. you may then steer W. by S. about a mile and a half, for *Nantasket Road*, where, if the weather be so bad as to prevent your getting a pilot from the island, you may anchor, and ride in safety.

If the wind be contrary, you may stand to the southward, 'till you bring the light to bear W. N. W. and to the northward 'till it bears W. S. W. until you come within 3 miles of it; then you must not stand to the northward any farther than to bring the light to bear W. by N. nor to the southward than 'till it bears W. N. W. you may safely anchor in the bay, if the wind be off the shore.

From *Cape Ann* to *Boston Light-house*, your course is S. W. and the distance 10 leagues. The light-houses at *Cape Ann*, stand on *Thatcher's Island*; when they bear S. by W. $\frac{1}{2}$ W. from you, they are on with each other. To go clear without *Thatcher's Island Ledge*, you must keep about 3 miles distant from the light-house. In thick weather, a gun will be fired from the light-house, to answer any signal which may then be made.

Note, When you proceed from *Cape Cod* for *Boston Bay*, with a flood tide, you should steer about one point to the northward of the before-mentioned course, because the flood sets in to *Barnstable Bay*; this precaution is the more necessary when the wind is northerly. You are to be equally careful in steering from *Boston Bay* to *Cape Cod*.

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Directions for sailing in and out of Boston Bay, from Cape Cod and Cape Ann: by Mr. Knox, Branch Pilot.

BOSTON LIGHT HOUSE stands on an island at the north entrance of the channel, 65 feet high. To steer for the light from Cape Cod, your course is W. N. W. from within one league of the Cape: the distance to the Light 16 leagues.

To steer for the Light from Cape Ann, your course is S. W. distance 10 leagues.

After making the Light, the wind fair, bring it to bear W. by N. or W. N. W. then run for it till within two cables length of it; come no nearer, but run by it till it bears N. by E. then you may run W. by S. about one mile and a half to Nantaket Road, where you may anchor in safety (if the weather is so bad as to prevent a pilot coming off the island).

To work into Boston Bay.

STAND to the southward till you bring the Light to bear W. N. W. and to the northward till it bears W. S. W. till you come within one league of it; then you must not stand to the northward any farther, than to bring it to bear W. by N. and southward till it bears W. N. W. you may anchor in the bay in safety, if the wind be off shore.

The light-houses at Cape Ann stand on Thatcher's Island; the two lights appear in one, when they bear S. by W. $\frac{1}{4}$ W. from you.

To go outside of the Londoners, (or Thatcher's Island Ledge) you must give the Light one League distance.

A cannon will be fired at the light-house to answer any signal in thick weather.

Remarks by Osgood Carlton.

IN coming into Boston Bay from Cape Cod, flood tide, the wind northerly there is danger of being carried more southerly than you steer, by the tide setting into Barnstable Bay; in such case it will be necessary to steer about one point more northerly than the above directions, either coming in or going out.

Note, These directions are agreeable to the common compass, which varies in the bay between 6 and 7 degrees westerly; but as this variation alters, the true variation should be often ascertained.

Sailing Directions for the Harbour of Boston, &c.

From the entrance of Boston Bay between Cape Ann and Cape Cod, which bear from each other S. S. E. $\frac{1}{4}$ E. and N. N. W. $\frac{1}{4}$ W. distant 14 leagues. From Cape Cod to Boston Light-house, the course is W. N. W. 16 leagues; and from Cape Ann it is S. W. 11 leagues. Until you come within two leagues of Boston Light-house, you shoal your water from 35 to 19 fathoms. The soundings are irregular: On the Cape Ann shore, the bottom is rocky; and fine white sand towards Cape Cod. On the days of the full and change of the moon, it is high-water off the Boston Light-house at ten o'clock. It flows off the town till a quarter of an hour past eleven. The spring tides rise 16 feet perpendicularly; neap tides twelve.

To sail in the Night, or turn within the Light-house Anchorage.

COMING from sea in the night, bring the Light-house to bear west, and steer for it; observing to incline your course southerly as you approach, in order to give a birth of two cables length to the Light-house Island. When you are abreast of the light, shape your course west, until it bears from N. N. E. to N. E. Here if not acquainted with the harbour, you may anchor till day-light. With the wind between the S. W. and the N. W. quarters, a ship may, in great safety, turn up within the Light-house Anchorage, taking care not to stand farther northward than to bring the Light-house to bear V' S. W. nor farther northward than W. N. W.

To sail through the best channel up to Boston.

SAILING up the narrows, keep the North Bluff of Hospital Island a small ship's length open with the South Bluff of George's Island. With these marks you will sail west, thence through the narrows your course in N. W. $\frac{1}{2}$ N. nearest, till you bring a remarkable hummock on the land (a little to the north-eastward of Boston) open with the east point of Nick's-mate Island; taking care not to stand so far to the westward, as to shut in the hummock with Nick's-mate, which would throw you on the ledge extending easterly from George's Island. You may sail within fifty fathoms of the Beacon and the Black Rock, and be in the best of the channel. Steer on these marks as far up as Gallop Island, and thence to avoid Nick's-mate Island and Lovell's Island shoals. The S. E. part of Gallop Island, and S. W. point of Lovell's Island are steep-to. When you are half the distance in your way from them towards Nick's-mate, keep one half of the houses on Point Shirley shut in with Deer Island; or the easternmost trees on Nantasket Head, just open on the east side of George's Island; or a grove of trees on the land over Point Shirley, one third from the eastward, shut in with Deer Island, hawling around the beacon in your way through the narrows, with little wind, keep the Black Rock on board with the flood, lest the tide, which streams with rapidity, should carry you through the channel, between Gallop Island and George's Island; with the ebb, give the Black Rock a good birth. Keep mid-channel until you have Spectacle Island entirely open with Long Island Head; then shape your course, which will be N. $\frac{1}{2}$ W. nearest, about 3 miles, between the north point of Spectacle Island. Other marks for sailing from Spectacle Island to Boston:—Keep a remarkable large tree in Charles Town on with the outer angle of the North Battery, till you bring the house on Apple Island and the two trees on the S. W. end of Governor's Island in one: then open the west side of that tree a little with the outer angle of the North Battery. Run up thus till you open the Meeting-house on Point Shirley, with the north end of Governor's Island; then incline westward, till you bring the two northernmost steeples of Boston nearly in one. To be in the deepest water, keep the northernmost steeple just open to the eastward of the other; and Castle William Island till you bring the first and second church steeples (from the north end of Boston) so near together, that you can but just see day-light between them: with the steeple as directed, the course is N. W. $\frac{1}{2}$ W. When you are abreast of Castle William, open gradually the northernmost steeple (which is the highest) to the eastward of the other; in order by the time you get the Meeting-house on Point Shirley and the two trees on the S. W. end of Governor's Island in one, the two steeples may be a small ship's length asunder. Thence bend gradually your course to the westward, until the northernmost steeple is almost shut in on the east side of the other, and anchor at pleasure off the Long Wharf, in four or five fathoms, clay bottom.

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To turn into Nantasket Road.

TURNING into Nantasket Road, when you come as high as the beacon, you approach the Centurion Rock, and are abreast of the Quarter Ledge. Stand no nearer to Nantasket Shore, than to bring the north of a remarkable grove of trees on the west shore, to touch the South Bluff of Hospital Island; nor nearer George's Island, than until the Dwelling-house upon Long Island is on with the S. W. low point of George's Island. When you have Nick's-mate Island shut in with George's Island, you are to the westward of all dangers, and may come within half a cable of George's Island and Nantasket Shores, taking care, with little wind, that you are not hauled into Nantasket Gut. For the best anchorage in the road, and sheltered from every wind:—Haul up within the S. W. point of George's Island, till you shut in the light-house with it.

To turn from Nantasket Island to Castle Island, and thence to Boston.

TURNING from Nick's-mate Island to Castle Island, you may approach the south point of Deer Island, which is bold-to; and when above it, you may stand in towards Shirley Point, till you bring the west point of Middle Brewster Island on Deer Island Point. When you are one-third of the way up to the castle, standing over to the northward, take care to keep the northward rocks of Calf Island a small ship's length open with Deer Island Point; and stand no farther southerly than to have the highest hummock of Great Brewster Island, or the north side of Nick's-mate Island, till you bring the two northernmost steeples so near together, that you can but just see day-light between. In small winds be attentive, lest the tides, which run strong towards the bay southward of the castle, should carry you along. Observe also to give a good birth to the ledge covered at third flood, extending from Castle Island near two cables, in a direction towards Spectacle Island. To turn from Bird Island to Boston:—When you have the Meeting-house on Point Shirley open to the northward of Governor's Island, you may stand to the westward, until you bring the two northern steeples in one. When one-third of the way up from Bird Island, open the northernmost steeple to the westward of the other. You may stand so far to the westward, as to bring the crane at the end of Long Wharf on with the third steeple from the northward, and no where have less than three fathoms of water.

There are three fathoms at low-water in *Broad Sound Channel*; but this spacious entrance into Boston Harbour is full of shoal and sunken rocks. *Shirley Gut*, although it is very narrow, affords a convenient passage for small vessels.

Marks for the Rocks and Shoals in sailing into the Harbour.

Cod Bank lies E. $\frac{1}{2}$ S. about three miles from the light-house, and in the fair way coming into the harbour, on which are four fathoms and a half at low-water. The marks for it are, the S. W. point of Green Island, just shut in with the N. E. point of Outer Brewster Island; and a remarkable tree near the N. W. end of Puttock Island, open with Nantasket Head.

The *Hardings* are steep-to: They lie S. E. three miles from the light-house, at low-water the largest rock shews itself about 20 feet long, and 4 feet high. It is surrounded by smaller blind rocks, extending about 140 fathoms on all sides. The marks for the largest are, the S. W. point of the Light-house Island, and the westernmost point of Great Brewster Island in one; and Nahaunt Rock a small ship's length open with the S. W. end of the Graves.

ALDERTON SHOAL extends in a direction from the Bluff Head of Point Alderton, towards the east end of the Light-house Island, one third of the distance over.

The north part of a remarkable grove of trees on the west land (well up in the country), just shut in with the north bluff of Hospital Island, is a long mark for its outer end, on which there are three fathoms at low water.

The marks for the *Light-house Island Shoal* are, The fourth bluff of George's Island, just touching the north bluff of Hospital Island; and the Flag-staff, with the west corner of the Dwelling-house on the Light-house Island in one.

The S. E. point of Great Brewster Island; and the easternmost tree on the east point of Outer Brewster Island in one, and one third of Nick's-mate Island, shut in with the east side of George's Island, are the marks for the *Centurion Rock*, on which is 11 feet at low water, common tides.

The Quarter Ledge extends from Nantucket Bluff 180 fathoms, in a direction towards George's Island. The marks for it are, the east point of the Light-house Island, and the east point of Outer Brewster Island in one; and the east point of George's and Nick's-mate Island in one.

The S. W. point of Apple Island, just open with the N. E. point of Nick's-mate Island, will lead you into the Narrows, clear of the *Flatts*, extending from the east side of *George's Island*, until you approach Nick's-mate Island, from which runs a small spit of stones.

The east side of George's Island, on with the easternmost House of Hull, is a long mark for the shoal of *Lovell's Island*. You are to the southward of it when the north point of Long Island is open on the south side of Nick's-mate Island; and when you open the north side of Castle Island, you are to the northward of it.

The *Lark* is a sunken rock, of about the size of a large boat, on which are 15 feet at low water: it lies near the edge of a Flatt, extending eastward from Hospital Island. The east point of Puttock Island, and the west point of Pumpkin Island just open, and Nick's-mate Island a little open to the north end of Gallop Island, are the marks for it.

The south point of Deer Island, a small ship's length open with the rocks, on the north point of the Calf Island, will lead you clear of the south side of the *Middle Ground*. When you bring the S. W. and the N. W. points of Spectacle Island in one, you are to the westward of it.

There are but three feet of water in the shoalest part of *Upper Middle*, stoney bottom. The house on Apple Island just shut in with the north side of Governor's Island, is the mark for its N. W. end.

Directions for sailing from Cape Cod to Holms's Hole, in Martha's Vineyard, extracted from those of Capt. Paul Pinkham, Branch Pilot.

BRING Morris's Island to bear N. N. W. then, by steering S. S. E. you will pass the Pollock Rip, in 3 or 4 fathoms; and if the weather be clear, you will make the light-house on Sandy Point. Bring Nantucket Island to bear S. W. by W. then steer for the light-house, keeping it in this direction, and you will pass between the great and little round shoals. When you are within about 2 miles of the light-house, steer W. N. W. until you are past the Point Rip; or you may bring the light-house to bear south, then steer W. by N. taking care to make your course good for Holmes's Hole.

To go through the Ship Channel, steer from Morris's Island S. S. E. until you cross the Pollock Rip, in 3 or 4 fathoms water. If the weather be clear, you will make the light-house. Continue to steer S. S. E.—S. by E. and south, until the light-house bears west from you; then steer directly for it, until you are within 2 miles of it. You should then steer N. W. until the light-house bears S. W. by W. as before directed; and passing it within about a mile of the shore, run until you are within 2 or 3 miles to the southward of it, there come to an anchor in 6, 7, or 8 fathoms water.

From

From Holmes's Hole to Cape Cod.

FROM the east chop of Holmes's Hole, steer E. by S. until you pass Nantucket Light-house. Bring it to bear west, and then steer east, taking care to make the course good, which will carry you over the shoals in Ship Channel: the ground is very uneven: you will have from 4 to 8 fathoms water. When you have passed the shoals, you will have from 10 to 14 fathoms; and then, by steering north, you will make the highlands of Cape Cod.

To go to the northward of the Round Shoal, you must proceed according to the foregoing directions, until you pass the light-house, and bring it to bear S. W. by W. then by making a N. E. by E. course good, you will go between the great and the little round shoals, in $2\frac{1}{2}$, 3, 4, and 5 fathoms water. The little round shoal bears N. W. from the great one, distant about 3 miles. Continue your course N. E. by E. until you deepen your water to 12 or 13 fathoms; and then steer north for the back of Cape Cod.

If you are coming from sea, and make the Island of Nantucket to the northward of you, it will be known by three wind-mills, which stand near to each other upon an eminence: you may then steer directly for the land, until you are within half a mile of it; and you may, if bound to the eastward, run along the shore in 4, 5, and 6 fathoms water to the S. E. part of the island, where there are shoals and rips on which you will have only $2\frac{1}{2}$, or 3 fathoms water. Continue your course along the shore, until you bring Sankoty Head to bear S. W. from you; then steer N. E. and you will go over the same shoals in the Ship Channel, as you do in steering east from the light-house.

Off the north part of Nantucket Island, there are three rips; the first is called the Bass Rip, and is about 3 miles from Sankoty Head: on some parts of this rip there are only 8 feet water; on other parts, $2\frac{1}{2}$ and 3 fathoms.

The Great Rip is about 7 miles from Sankoty Head; on this rip, about E. S. E. from Sankoty Head, there are 6 feet water; and east from Squam, there are only 5 feet, but on many other parts of it, there are $2\frac{1}{2}$, 3, and 4 fathoms water.

Fisher's Rip is about 5 leagues from Sankoty Head, and has from 5 to 7 fathoms water on it. Between this rip and the great rip, the ground is uneven; there are 12, 22, and 15 fathoms: these two rips stretch nearly north and south, and are in length about 12 miles.

If in coming from sea, you make the south shoal, which lies in 40 deg. 48 min. north latitude, give it a birth of a mile or two. If you intend to make Nantucket Island, steer N. by W. and when you come near to the island, you may proceed along the shore, according to the former directions.

If, when you make the south shoal, you are bound to Boston Bay, and chuse to go to the eastward of all the shoals and rips, pass a mile or two to the eastward of the south shoal; then steer N. E. by E. until you deepen the water to 45 and 50 fathoms, and then steer N. by W. for the back of Cape Cod.

Bearings and Distances of Nantucket Shoals, from the Light House.

From	Bearings.	Leag.
Nantucket Light-house to the South Shoal	S. $\frac{1}{4}$ E.	11
to Nantucket Harbour	S. S. W.	3
to Juckanuk Shoal	W.	3
to the east chop of Holme's Hole	W. by N.	9
to the north-eastermost part of the Horse-shoe	N. W. $\frac{1}{4}$ W.	5 $\frac{1}{2}$
to Hiannas	N. W. $\frac{1}{4}$ N.	6
to the Handkerchief	N. by E.	4 $\frac{1}{2}$
to Sandy Point	N. by E. $\frac{1}{4}$ E.	5 $\frac{1}{2}$
to the Snow Drift	N. N. E.	5
to the Stone-horse	N. E. by N.	4
to the little Round Shoal	N. E.	3
to the east end of Polock Rib	N. E.	7
to the Great Round Shoal	E. N. E.	3 $\frac{1}{2}$
to the Point Rip	E. N. E.	1 $\frac{1}{2}$
to the north end of the Great Rip	E. S. E. $\frac{1}{4}$ E.	5 $\frac{1}{2}$

T I D E S.

On Nantucket Shoals the tide flows, on the change and full days of the moon, half past 10 o'clock, and the stream continues to run for an hour longer. The flood sets N. E. by E. and the ebb S. W. by W. The stream runs from 2 to 3 knots an hour, and the water rises between 5 and 6 feet,

Directions for going between Martha's Vineyard and the Main, and thence through the Shoals to the eastward, having made Block Island.

In approaching the south end of Block Island from the southward, the water shoalens gradually. When the island bears from N. W. to N. by W. the bottom is mud: this is commonly called Block Island Channel. This island appears high and round as you come from the southward; and if from the S. E. it is like a Saddle, low in the middle and high at each end, though highest to the southward. Your course from Block Island to Grey Head, is E. $\frac{1}{4}$ N. and the distance about 14 leagues.

GREY HEAD is the westernmost point of Martha's Vineyard Island: The land of this head is high, and of several colours, as red, yellow, and white, in streaks. In steering from Block Island for Grey Head, you must be careful in avoiding a parcel of rocks, called the Sow and Pigs, some of which are above water. These rocks lie 3 miles W. by S. from the westernmost of Elizabeth's Isles, and about 5 miles N. W. from Grey Head. The first of the flood tide sets strong to the northward over the rocks into Buzzard's Bay, which is a foul bay. Within Grey Head, there is a fair sandy Bay, in which there is good anchoring, with south and south-easterly winds. Your course along Elizabeth Isles, is E. N. E. in 15, 12, 8, 15, 16, and 17 fathoms water: give the isle a birth of about three quarters of a mile. There is an opening at the west end of the easternmost of Elizabeth Islands: it is called Quick's Hole, and has pretty good anchorage. About 3 leagues E. N. E. from the mouth of Quick's Hole, there is another opening at the east end of the island, called Wood's Hole.

About

About midway between Quick's and Wood's Holes, there is a fair sandy cove in the island, called Elizabeth's Island, because the largest of Elizabeth's Isles: it is called Tarpauling Cove. The entrance is bold on both sides, and you may anchor in 6, 5, 4, or 3 fathoms water, and lie secure from all winds, excepting those which blow from the E. S. E. The ground is good for holding, and there is no tide. In this cove the tide flows, on the change and full of the moon, at nine o'clock; but in the channel between Elizabeth's Island and Martha's Vineyard, the flood runs until twelve o'clock. In this channel there is a middle ground, which extends nearly as far to the eastward as the north point of Martha's Vineyard, called the west chop: on this ground there are from 2 to 6 fathoms water. On the south side of this ground there is also a channel, in which there are 9, 8, and 7 fathoms water. When the east chop of Holmes's Hole comes open of the west chop, you are to the eastward of the middle ground.

HOLMES'S HOLE lies about 3 leagues S. S. E. from Tarpauling Cove: it is a very good harbour: the ground is good, and you may anchor where you please. The usual mark for anchoring is, the west chop, bearing from S. S. W. to S. W. by W. in 6 or 5 fathoms water. In this Harbour, which is two miles deep, you will lie secure from all winds, except a northerly one. About $2\frac{1}{2}$ miles northward from Holmes's Hole, there is a shoal called the Hedge Fence: it extends W. N. W. and E. S. E. 6 miles, is about a mile broad, and has from 4 to 6 feet on it at low-water: between this shoal and Holmes's Hole, there are from 8 to 12 fathoms water.

From Holmes's Hole to Cape Poge, the course is S. E. by E. distance about $3\frac{1}{2}$ leagues; in the channel between them, there are 12 and 11 fathoms water. In going through this channel, you must be careful to keep your lead going, in order to avoid a dangerous sand which lies on the north side of it, called the Horse-shoe. The channel between this sand and Cape Poge, and also between the former and Tukanuk Shoal is narrow; in it there are from 12 to $4\frac{1}{2}$ fathoms water. Some parts of this sand dries at low water; on other parts there are narrow channels, through which vessels may pass: the easternmost part of it spreads with many prongs, like fingers. When Tukanuk Island bears S. S. W. you are to the eastward of the Horse-shoe. On the south side of the channel also, there are several spots of sand, to avoid which you must keep your lead going.

There is a harbour between Martha's Vineyard and Cape Poge, in which you may anchor. In proceeding for this harbour, you pass within a mile of Cape Poge, and then steer in south, along the low sandy beach on the west side, in 5 fathoms water, until you come to the southernmost part of it; then sail more easterly about a mile, until you bring the town, which is in the bay to the westward, fairly open; and then steer directly west into the harbour, until you get within half a mile of the town, where you may anchor in 4 or 3 fathoms water. This harbour is a gut, between Martha's Vineyard and Cape Poge, and is formed by a shoal, which lies on the N. W. and W. side of the entrance, and the beach to the southward. The tide runs strong into this harbour until 12 o'clock.

If you come from the eastward, and are bound for Long Island, or New York, you should avoid going to the northward of 40 deg. 30 min. latitude, until you pass the south shoals of Nantucket: the southernmost part of them lies in latitude 40 deg. 42 min. If, by stress of weather, you should be driven so far to the northward as to be near to Nantucket Island, you may pass through the channel to the southward of the island: this is a very difficult and dangerous passage, and I would not recommend it, but in cases of necessity. Martha's Vineyard Island lies nearly in the same latitude as Nantucket, and may be known by a small round island, which lies off to the southward of Grey Head, called Norman's Island. You may sail between this island and Martha's Vineyard; but you must be careful of a ledge of rocks which lie nearly in the mid-channel.

Observation on the Gulf Stream.

SHIPS, in passing the shoal ground on St. George's Banks, and on Nantucket Shoals, should take care to go between those shoals and the Gulf Stream. As the southernmost part of the shoal ground on St. George's Bank lies in 41 deg. 39 min. latitude, and the northern limit of the Gulf Stream, directly south from this shoal ground, extends to latitude 39 deg. you should pass the shoal ground between these two latitudes. As the south part of Nantucket Shoal lies in latitude 40 deg. 42 min. and the Gulf Stream southward from this part, reaches as far to the northward as latitude 38 deg. 30 min. you should pass Nantucket Shoals between these latitudes. The shoal ground on St. George's Bank lies in longitude 67 deg. 56 min. west, and the south shoal of Nantucket in 69 deg. 37 min. west.

By observing the above directions, and keeping between the Gulf Stream and the shoals, you will shorten your passage to New York, Delaware, Virginia, and other western ports; for you will have the advantage of the eddy current running contrary to the Gulf Stream: the latter would retard your progress at the rate of 60 or 70 miles a day. The Nantucket Whalers, by their constant practice of whaling on the edges of the Gulf Stream, all the way from their Island to the Bahamas, are well acquainted with its course, velocity, and extent. A stranger may know when he is in the Gulf Stream, by the warmth of the water, which is much greater than that of the water on either side of it. If, when you are crossing the Gulf Stream, you are bound to the westward, you should get out of it as soon as possible.

Farther Observations on the Gulf Stream, by Governor Pownall, Dr. Benjamin Franklin, &c. &c.

IN the like manner as the combined ATTRACTION between the sun, moon, and earth, being uniform and permanent, produces an uniform and permanent effect in the general tides of the ocean, so the winds, where they are uniform and permanent, produce, by protrusion, currents in the ocean in like manner permanent and uniform.

The tide raised by attraction being (if I may so express it) a local elevated wave, which is preceded and followed by its progressive motion, by a depression of the level, the sea is in a constant oscillation of tide and ebb. The currents occasioned by the protrusion of the winds, continue at all times flowing one way, either in the direction of the wind, or in a diverging lateral course; or in a reflexed recoiling current, as the waters piled up against any obstruction find the means of running off, and descended from this forced elevation.

The winds between the Tropics having a general course westward, protrude the waters of the Atlantic Ocean in the same direction. Where this general current meets with land or islands that obstruct its course, with rocky ground or sands that divert its course, or where it runs through channels which draw it into other directions, this general effect partakes of the operation of these secondary causes. This general current in passing through the chain of the Carribee and Bahama Islands, and amongst the Cayos of the same, is diverted and drawn from its general course in almost all directions. Where it is not interrupted or disturbed, it keeps its general course, as along the West-Indian Sea, through the Gulf of Mexico* to its bottom; and in the channel between Hispaniola, Cuba, and the Cayos and Islands of Bahama, to the Gulf of Florida. The main current, which runs directly west to the bottom of the Gulf of Mexico, being there opposed by the Continent, does there pile up its waters to a very elevated level. These aggregated waters

* They cannot run off by the south of the Gulf of Mexico, because the winds and the general currents, in the space between that province and Hispaniola, stop the current there.

run off laterally, and descend down an inclined plain along the Coasts of Mexico, Louisiana, and Florida, and rounding the Sable Point of Florida rush into the Gulf of Florida. The current, which runs N. W. through the old Bahama Channel, meets it at its embouchure the current coming N. E. round the point from the Gulf of Mexico; and these in one combined current, set through the Gulf of Florida north-easterly; the lateral diverging partial currents, and something of a lee current excepted. From hence this current, in a bending and expanding flow, sets north-easterly along the Coast of North America to N. latitude 41 deg. 20 min. or 30 min.

The Current of the Gulf Stream, as it sets along the New England Coasts.

THIS current lies in the meridian of the Island Nantucket, in north latitude 38 deg. 30 min. and in the meridian of George's Bank, as before observed: its northern edge is in north latitude 39 deg. where its course is E. N. E. In the meridian of the Isle of Sable its northern edge is in north latitude* 41 deg. 20 min. or 30 min. and here its course is E. S. E. and S. E. by E. The southern is not so decidedly marked or known.

This current thus revolving in an orbit (which, speaking generally, may be said to be a defined orbit) round the Atlantic Ocean in a continual circulation: it is conformable to the laws of hydraulics, that there should be, in the space included within the inner edges of this orbit, an eddy, into which all floating substances, such as wood and weeds, which fall into the general current, shall be finally absorbed. Now the fact is, that weeds, called the *Sargasso* weeds, as also the gulf weeds, have been observed, as found at certain and ascertained latitudes and longitudes, within the area of the orbit of this general current, and nearly on what may be supposed the inner edge thereof. As in N. latitude 34 deg. W. longitude from London 41; again in N. latitude 83 deg. W. longitude 50 deg. the breadth of the space within which these weeds are here found, is about 2 deg. 45 min. again in W. longitude 27 deg. The northern boundary in which these weeds are here found, is N. latitude 34 deg. and the southern boundary 19 deg.

Skilful navigators, who have acquired a knowledge of the extent to which the northern edge of the Gulf Stream reaches on the New England Coast, have learnt in their voyages to New England, New York, or Pennsylvania, to pass the Banks of Newfoundland in about 41 deg. or 45 deg. N. latitude; to sail thence in a course between the northern edge of the Gulf Stream, as above described, and the shoals and banks of Sable Island, George's Bank, and Nantucket, by which they make better and quicker passages from England to America.

Directions from Block Island to Rhode Island Harbour.

FROM the S. E. point of Block Island to Rhode Island Light House, the course is N. N. E. $\frac{1}{4}$ E. the distance 7 leagues: about midway between them, there are 24 fathoms water. if you are on the west side of Block Island, with the body of the island bearing E. N. E. in 8 or 10 fathoms water, your course to point Judith is N. E. by E. about 6 leagues: This point appears like a Nag's Head, and is pretty bold. Between Block Island and it, there are from 30 to 6 fathoms water. From Point Judith to Rhode Island Harbour, your course is N. E. and the distance about 5 leagues. The Light-house must be left on your larboard side; it stands on the south point of Conanicut Island: this point is called the Beaver's Tail, and is about 3 leagues distant from Point Judith. After leaving the Light-house on

* These facts were in part confirmed, and in part corrected as they now stand, from a paper given me, by my old friend Dr. Franklin, at Passy, Oct. 7, 1784.

your larboard side, you must take care to avoid the rocks, which lie off south from Castle Hill: some of them are above water. Castle Hill is on the east side of Rhode Island Harbour. If you steer N. E. you will have 20 fathoms water: the shore is hard and rocky. A little within the harbour, and near to the shore on the west side, there is a rock, called the Kettle-bottom. There is also a cove on the west side, called Makarel Cove, the entrance of which is shoal and dangerous. About a mile, or a mile and a half within the harbour, there is an island, called Scape Goat Island: it lies right before the town, and stretches about N. E. and S. W. As both ends of this island are pretty bold, you may pass into the anchorage at either end, and ride nearer to Rhode Island side, than to that of Scape Goat Island; because the other parts of the harbour are grassy, and would be apt to choak your anchors. Rhode Island is navigable all round, by keeping in the middle of the channel.

Naraganset Bay lies between Conanicut Island and the main. Your course in, is about north, taking care to avoid the Whale Rock: you may pass it on either side, and anchor where you please. From the Light-house on Conanicut Island to Grey Head, in Martha's Vineyard Island, the course is E. S. E. the distance $10\frac{1}{2}$ leagues. In little wind, you must take care that the flood does not carry you into Buzzard's Bay, or on the Sow and Pigs.

Directions for Sailing along the Coast of New York from Block Island to Gardiner's Bay.

MONTUK POINT, which is the easternmost part of Long Island, is $5\frac{1}{2}$ leagues S. by W. from the S. W. point of Block Island. Between the island and the point, there are 16 and 18 fathoms. As you approach the point, you will quickly come into 9, 7, and 5 fathoms. A flat runs off from the above point, on the outer parts of which there is water enough.

The N. E. part of Gardiner's Island is $5\frac{1}{2}$ leagues W. N. W. from Montuk Point: with westerly winds you may anchor off this part of the Island, which is sandy. The marks for anchoring are, the high lands of Plumb Island N. W. and the south point of Gardiner's Island in sight, bearing S. by W. or south: you will have 12 or 10 fathoms: the bottom is sand and mud. About 5 miles north from the north part of Montuk Point, there is a rock on which there are 16 feet water.

The entrance of Gardiner's Bay is formed by the north end of Plumb Island, and the sandy point of Gardiner's Island. When going into the bay, you must give the north end of Gardiner's Island a large birth, for a shoal runs off from it to a considerable distance: come no nearer to it than 6 fathoms water. You should also be careful not to approach Gull Rock nearer than a mile and a half, in order to avoid a very foul and rocky spot, on which there are about 3 fathoms at low water. This shoal lies with the following marks and bearings: A house on Plumb Island, standing about one third of the way between the middle and the north east end, on with the northernmost of the two trees which appear beyond the House; the north end of Gull Island to bear N. N. W. or N. by W. $\frac{1}{2}$ W. and the south-east end of Plumb Island on with the N. W. point of Long Island. In order to avoid this rock, when going into, or coming out of Gardiner's Bay, you must be sure to keep the south point of Plumb Island open of the north-west point of Long Island, whilst the House on Plumb Island is on with the northernmost of the two trees as before-mentioned. There are several trees, but they appear, when viewed at a distance, to be only two trees. This shoal is called by some the Bedford Rock, because his Majesty's ship Bedford grounded on it, August 15, 1780. In Gardiner's Bay, you may anchor in what depth of water you please, from 5 to 8 fathoms.

On the south side of Gardiner's Island there is a very good riding. If you are to the eastward of the island, with an easterly wind, and wish to take shelter on the S. W. side, you must give the north-west end of the island a large birth, as before directed; and as you open the west side of the island, you may haul round the N. W. point, and anchor where you please. The soundings are regular.

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About $4\frac{1}{2}$ miles N. W. $\frac{1}{2}$ N. from Montuk False Point, there lies a small rocky shoal, on which there are 16 feet at low water. Montuk False Point is about 3 miles N. W. from the true point. On the 16 feet rocky shoal, there are the following bearings, namely, The long white cliffs on the west end of Fisher's Island N. by W. $\frac{1}{2}$ W. the Gull Rock W. N. W. the north-east bluff of Gardiner's Island W. S. W. $\frac{1}{2}$ W. a grove of trees which stand on the west side of Fort-pond Bay. This bay is very convenient for wooding and watering: the ground is clear and good, and you may anchor in any depth you please. In a large ship, you may bring Willis's Point to bear N. E. and even N. E. by N. and then have in the middle about 7 fathoms water. Near to the shore, at the bottom of the bay, there is a pond of fresh water.

From the west point of Fisher's Island, a dangerous reef runs off about one mile W. S. W. which in passing it you must be careful to avoid. In this passage, which is called the Horse-race, the tide runs very strong; it flows on the change and full days of the moon half past eleven o'clock, and the water rises 5 or 6 feet.

LONG ISLAND, from Montuk Point to Yellow Hook, extends W. by S. about 108 miles, and is at the broadest part about 10 miles across. The land is generally pretty low and level, excepting a few hills which lie about 40 miles to the westward of Montuk Point. Along the south side of the island, a flat extends about a mile from the shore; in some places it runs out a mile and a half. Your course along this flat from Montuk Point to Sandy Hook, is S. W. by W. $\frac{1}{2}$ W. 14 leagues, and then W. by S. 22 leagues. The east end of the flat is sand; the middle and west parts are sand and stones. At 4 leagues distance from the island, there are from 15 to 18 fathoms water; and from that distance to 20 leagues, the water deepens to 80 fathoms; in the latter depth, you will have oozy ground and sand with blue specks in it. About 4 leagues off the east end of the island, you will have coarse sand and shells; and at the same distance from the middle and west end, there is a small white sand. From the S. W. end, there is a shoal which extends about 6 miles towards Sandy Hook.

Instructions for going between Long Island and Sandy Point, or Sandy Hook, and thence up to New York.

THE entrance of New York lies between Sandy Hook and the before-mentioned shoals, which extends about 6 miles S. by W. $\frac{1}{2}$ W. from the S. W. part of Long Island, towards Sandy Point; the distance between them is about 2 miles: in the best of it, there are 5 or 6 fathoms water. Sandy Point, or Hook, is pretty high land, and round at the top: it is sometimes called Portland. In proceeding for Sandy Hook, you must not come very near to the land on the south side, because there is foul ground and shoal water; namely, $2\frac{1}{2}$, 3, and $3\frac{1}{2}$ fathoms: you should not approach any nearer to this side, till Sandy Point bears N. W. by W. and then direct your course N. W. between Sandy Point and the Spit, in 3 or 6 fathoms water. When you have got within Sandy Point, and wish to anchor, steer south, or S. by W. into the bay to the westward of the point, called Sandy Point Bay or Road, and there you may come to an anchor in 4 or 5 fathoms water. If, when you are past the point, you do not chuse to anchor, continue your course until you come into 4 fathoms to the westward of the Spit, and then proceed between it and the flat that lies off from Staten Island. Your course is about N. N. E. in 5, 6, 4, and sometimes 3 fathoms; as the channel is narrow, it will be necessary to keep the lead going. When you are abreast of the little Round Island, which lies off the S. W. point of Long Island, and is called Coney Island, your course to Yellow Hook is about N. by W. and thence to Nut Island N. N. E. the whole distance is about $3\frac{1}{2}$ leagues. Nut Island is small: it lies due south from New York Castle Point, and near to Long Island. Between these islands you will have from 8 to 15 fathoms, and shoals to 8 fathoms again, as you approach Nut Island: you must haul round Nut Island to anchor in New York Road or Harbour. The tide flows at the Hook, on the change and full days of the moon, at half past seven o'clock.

Directions for sailing into the Harbour of New York, &c.

WHEN off Sandy Hook, in 10 fathoms water, do not shoal your soundings by approaching the bar, until you have brought Mount Pleasant half way between the light-house and the cedar trees, (the light-house will bear about W. $\frac{1}{4}$ S.) then steer across the bar W. by N. if flood tide, and W. N. W. if ebb tide (quarter less four is the least water on the bar at half flood).

When you have deepened to 6 fathoms, and Mount Pleasant is well to the northward of the north point of the Hook, shape your course west, and pass within two cables length of the point, which is bold-to when abreast, but shoals in an easterly direction towards the north-western extremity of the middle ground, where the channel between it and the shore of the Hook is reduced to a very narrow and intricate pass of three fathoms and a half water. The outside of the middle ground deepens gradually, and you may, standing to it, safely trust to your lead.

If you mean to stop at the Hook, bring the light-house to bear E. S. E. to E. by N. and anchor in 6 fathoms good ground; but if bound to New York, continue your course westward, observing not to approach the east bank nearer than 5 fathoms, at which depth you will be close to its edge. When you have brought Bond's Hollow (the west fall of Never-sink) to bear S. $\frac{1}{4}$ E. or S. by E. you are past the south-west spit, and may shape your way northwards to the narrows, being cautious for avoiding the Upper Middle, not to borrow to the east bank so much as to shut the cedars on the Hook, with the high land of Never-sink (here it is proper to remark, that the flood sets strong to the westward from the south-west spit, until you are above the Upper Middle, whence it runs up channel-course to the narrows). When abreast the Upper Middle, and above the draught of the Amboy Tide, haul over to the north-east until you open Snake Hill with the bluff point of Staten Island, and steer for the narrows. Being to the eastward of the west bank, you may sail close to this part of Staten Island, which is steep-to. There is a reef extending about a cable's length from the east shore of the narrows: keep mid-channel until you open the passage between Staten Island and the Main (commonly called the Kills). In order to avoid the edge of the west flat, which is steep-to, keep the high bluff on the west shore of Hudson's River well open to the eastward of Bedlow Island; and to sail clear of Mud-flat, on the east side of the channel, have the points of Hudson's River open with each other. Mud-flat deepens regularly, and may be avoided by the lead. There is good anchorage in eight fathoms abreast of the Old Church, but in six fathoms the ground in this part of the river is bad.

N. B. The above bearings are by compass; the variation being 7 deg. westerly. The Light-house on Sandy Hook lies in 40 deg. 27 min. latitude north, and in 74 deg. 0 min. 3 sec. longitude west from the Royal Observatory of Greenwich.

It is high water on the days of the full and change at the Hook at

H. M.
7 30

Note, That the stream of the tide continues to set in till nine o'clock at the rate of two knots.

At New York in the east river 9 00
in the north river 11 00

Tides rise perpendicularly about seven feet, but are sometimes checked to such a degree by the westerly or north-westerly winds, as to lower the water on the bar to three fathoms and a quarter, and easterly or north-easterly winds have frequently risen it to five fathoms.

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THE tide during the last quarter ebb sets from the North River around Fort Point, and flows up the East River at the rate of three knots, whence, with a like velocity, it returns two hours before the North River high-water time. This affords great convenience to ships in shifting their birth from one river to the other. The king's ships, during the summer seasons, ride in either river in the stream; in the winter they haul-to or moor between the wharfs. The Twelve-foot Ledge off the town, and the funken wrecks and chevaux-de-frize, shew by the ripple of the tide. The best passage up the East River is to the northward of Governor's Island, keeping mid-channel until you are past the rocky flats off Long Island, (opposite the Careening Yard and the south-east reef of New York Island) which runs out 150 fathoms in a southerly direction from Red Bank: from this Long Island Shore is bold to Brunswick Creek, where it shoals a little way off Pat Point. In order to clear the York Island Shore Flat, opposite Brunswick Creek, borrow towards the creek, keeping the water-mill in Wallabout Bay on or open westward of Bruckland Church-spire (on a hill to the westward): you may sail close under the bold rocky cliffs on the western shore. Blind Rock and Governor's Table Rock extend S. W. 600 fathoms, on a range from Blackwell Island. The channel on the west side of the island is clear, and throughout deep a boat's length from the shores. There is a funken rock two-thirds of the way up the eastern channel, and about 30 fathoms from the starboard shore. Before you enter into either of the Blackwell Island Channels, if flood, let the tide be nearly spent; if ebb tide, endeavour, by stemming the stream, which continues swift until a quarter of an hour before the turn of the tide, to reach Hell Gate at low-water slack; the most desirable time to get through. As you run up between Flood Rock, which is steep-to, and the point of Long Island, bear up more easterly, keeping mid-channel. The least drain of tide will shew the Hog's back dangers on your larboard, and the Pot Rock on your starboard, by the uncommon ripple and boiling appearance of the water. There is sufficient depth for large ships, until you come up with Marsh Isle, where it shoals and forms a bar across the channel, with only four fathoms at the top of high-water; and about a third of the way over from the isle, there is a single rock with no more than ten feet water. To return through Hell Gate, high-water slack is the most convenient time, as the tide is favourable down to New York; there is however sufficient depth at low-water for any ship in the Gate. Should the pilot have miscalculated the tide, and the ship, with a strong favourable tide and a leading breeze, is advanced near the Gate, you must attend the true set of the stream, in which you may easily keep the ship with lofty sails; low sails being liable to be becalmed by the land. The principal ebb stream leads round Mill Rock, which is very bold, whence it turns short to the southward by Flag-staff Point, in the western Blackwell Island Channel. The passage between Mill Rock and Scot Cap is deep, but very narrow. The southernmost passage between Flood Rock and Long Island is used on the flood only, when the stream leads fair through.

Long Island Sound.

FROM Marsh Island eastward, the sound is navigable for the largest ships. The stream continues moderate for about three leagues to Frog Point, where the New York tide meeting the Sound tide in contrary directions, causes a perfect stagnation. The Ship Channel is to the northward of the two Brethren Isles and Hulet Island, observing to keep near the main until past Lawrence Reef (which extends third channel over from the east point of Flushing Bay); and thence keeping clear of the north shore, until you have doubled Frog Point Peninsula. Your course to New City Island is about N. N. E. You must observe not to borrow

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towards the east side of the Peninsula, on account of the Mud Flat extending from it towards New City Island anchorage. The Stepping Stones (partly dry at low-water) leave a sufficient channel to the northward to work up or down. The Executioner's Rocks (dry at half tide) lie north-east two miles from Heart Island, and north about one mile from Sands's Point: the channel to the southward of them is the most frequented. Here the Sound widens, and affords secure anchorage in Oyfter Bay. Huntington Bay and Hamstead Bay for ships, and in the ponds above for small craft, and (excepting the outer points of Oyfter and Huntington Bay) the soundings are regular; and as you approach towards the extremity of the island, the sound becomes narrower, and you will feel the strength of the tide encreasing.

In the entrance into Gardner's Bay, between Long Island and Plumb Island, and between Plumb Island and Fisher's Island, the tide streams with vast rapidity; and in calm weather, the Ripple (or Race) is heard at a great distance: it has the appearance of shoal ground, although there is no less than twenty fathoms water. The channel between Fisher's Isle and the Gull Rocks (which are small low grass islands, distant about two miles from Plumb Island) is five miles wide; and there is a shoal with seventeen feet of water, which lies south-east about a league from the body of Fisher's Island, and may be easily avoided by keeping the north shore on board.

From the entrance of New York to Barnigate Shoal, the course is S. by W. $\frac{1}{4}$ W. and the distance $15\frac{1}{2}$ leagues. From Barnigate Shoal to the entrance of Little Egg Harbour, the course is S. W. $\frac{1}{4}$ S. and the distance 5 leagues. From the entrance of Little Egg Harbour to that of Great Egg Harbour, the course is S. S. W. $\frac{1}{4}$ W. and the distance 6 leagues. From Great Egg Harbour to the entrance of Delaware Bay, the course is S. W. $\frac{1}{2}$ S. and the distance 8 leagues. All along this coast, from the entrance of New York to that of the Delaware, the soundings are regular: at the distance of two leagues from the shore, you will have from 8 to 10 fathoms water, until you are off Great Egg Harbour; and thence to Cape May, you will have from 5 to 7 fathoms.

For Delaware Bay.

THE entrance of Delaware Bay is formed by Cape Mary on the east side, and Cape Henlopen on the west side; they bear N. E. $\frac{1}{4}$ N. and S. W. $\frac{1}{4}$ S. from each other, distance asunder about 7 leagues. Before the entrance, there lies a long narrow bank, on which there are from 5 to $3\frac{1}{2}$ fathoms water. The north-east end of this bank lies E. $\frac{1}{2}$ S. 3 leagues from Cape May: it thence extends S. W. 6 leagues. The S. W. end lies 4 leagues S. by W. $\frac{1}{2}$ W. from Cape May, and 3 leagues E. N. E. $\frac{1}{2}$ E. from Cape Henlopen. On the north-east end of this bank, there are 5 and 4 fathoms water; and on the middle, and the S. W. end, there are 4 and $3\frac{1}{2}$ fathoms; near to this end, both within and without, there are 9 and 10 fathoms; and near to the middle, and to the other end, there are 6 and 7 fathoms. From 3 to 7 miles S. W. from Cape May, there are over-falls, on which there are from 12 to 18 feet water: near to them, on all sides, there are 5 and 6 fathoms.

As the best channel into the Delaware is on the south side, you should keep along the south shore, at the distance of about a mile, until you come within 4 miles of Cape James; then edge off to avoid a shoal called the Hen and Chickens, the south end of which lies 3 miles N. N. W. The north end of this shoal lies a mile and a half E. by N. from the light house. Near to the shoal on the east side, there are 15 fathoms water. The south end is about 2 miles from the nearest shore. When you are abreast of Cape James, steer N. N. W. about 4 leagues; taking care frequently to observe the bearings of the cape, in order to avoid being carried to the westward by the flood tide, before you get the length of the guiding sand, and consequently forced to go through the western channel. When you are on the east side of the guiding sand, you may run close along it, by your lead, if you intend to go to the westward of the Middle Ground. When you are so high as to

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to bring the Mother Kill and Gammon Ile E. N. E. and W. S. W. then you are the length of the guiding sand. The Mother Kill shews itself with a fair opening, with trees on each side, like as though a pair of Gates stood open. If you go to the westward of the Middle Ground, you must be careful to avoid being involved with Bombay Hook Shoals. You will see in the Chart how the western shoal and the adjacent shoals meet you as you proceed. The tide in the entrance of Delaware Bay, flows, on the change and full days of the moon at nine o'clock; and at Bombay Hook Island, it flows half past 10 o'clock.

From the entrance of the Delaware to abreast of Chingoteak Island, the course is S. $\frac{1}{2}$ W. and the distance 16 leagues. In order to avoid some shoals which lie off this part of the coast, you should not go farther off than into 7 or 8 fathoms, water. The northernmost shoal lies 6 leagues S. E. $\frac{1}{4}$ S. from the False Cape, and $7\frac{1}{2}$ leagues N. E. by E. from Chingoteak Island. This is a small shoal, and has only 10 feet water on it: between it and the shore, there are 13 fathoms. Three leagues S. by E. from this shoal, there lies another small one, on which there are 13 feet water. From this shoal, the False Cape bears N. W. by N. $\frac{1}{4}$ N. distant 9 leagues; and Chingoteak Island bears W. by S. distant 7 leagues. Between the two shoals, there are 7 and 6 fathoms. Near to the latter shoal, there are, almost all round, from 10 to 13 fathoms. Four leagues W. S. W. $\frac{1}{2}$ W. from this shoal, there lies another with the following bearings, namely, Chingoteak Island W. $\frac{1}{2}$ S. distant 3 leagues, and False Cape N. $\frac{1}{2}$ W. distance 9 leagues. Between this shoal and Chingoteak Island, there are 9 fathoms water. Three leagues W. S. W. from this shoal, and S. E. $\frac{1}{4}$ S. 4 miles from Chingoteak Island, lies the north end of the flat, that extends from the islands which lie between Chingoteak Island and Cape Charles: near to this end of the flat, there are 5 fathoms water. You must run along the edge of this flat in 4, 5, or 6 fathoms water: the course is S. S. W. $\frac{1}{2}$ W. and the distance, to abreast of Cape Charles, 20 leagues.

ASTRONOMICAL OBSERVATIONS.

Names of Places.	Longit. W. of London.	Latitude N.	Observers.
	D. M. S.	D. M. S.	
New York at the Fort	74 6 0	40 41 25	{ Governor Burnet and Erwin Prior in 1769.
Sandy Hook Light-house	74 8 0	40 27 00	The King's Commissioners.
Cape James, or Henlopen	75 7 30	38 46 00	{ Monf. De Chabert, with the ma- rine clock.
Philadelphia	75 10 40	39 56 54	{ Messrs. Mason and Dixon, and Erwin Prior, 1769, &c.
Norriton	75 28 0	40 9 56	Mr. Ritenhouse.
Cape Henry	76 17 0	36 57 00	{ The latitude by M. Chabert; the longitude by a mean between the observations of the same gen- tleman, with the marine clock; and the calculation made from the Journals and British ships of war, by Capt. Gascoyne.
Cape Hatteras		35 7 50	Capt. Gascoyne.

NEW

DIRECTIONS FOR SAILING

ALONG

THE COAST OF NORTH AMERICA.

Part the Second.

Directions for Cape Henry in Virginia, including Chesapeak Bay, &c.

WHEN you sail to the southward of Cape Henry, you have deeper water than when you are in the latitude thereof, as 21 fathoms reddish sand, and pretty large; and 9 leagues off it, is 35 and 40 fathoms, fine grey sand; and in the latitude of 36 deg. 19 and 23 fathoms, large yellow sand, with shells; and when you come into the latitude of Cape Henry, 7 leagues off, you will have 11 fathoms, grey sand, and from that to 9 fathoms, with a pretty strong current. The land is low and sandy, you cannot see it above 7 leagues. *Cape Henry* is low, but bluff, with a few trees to the sea side, a little distance from the water: it is very steep-to, having 7 fathoms close by the cape, and nothing to hinder you from coming into *Lin Haven Bay*, where you have soft ground in 5 or 6 fathoms water. The bank called the *Middle Ground* is above a league from the cape, where is a very good channel to the northward, and very broad between this shoal and the shoal of *Cape Charles*.

From *Lin Haven Bay* to *Keketan*, steer N. W. until you bring a remarkable tree, which you will see on your larboard side, about W. S. W. then steer N. W. by W. a league, and when you have the said tree S. W. you are in the beginning of the narrow; then steer W. $\frac{1}{2}$ N. to the north shore, and when you are come about a mile off the north shore, that *Point Comfort* bears N. $\frac{1}{2}$ E. you will have 11 fathoms; then you may steer W. by S. and W. S. W. for the road.

When you come from *Lin Haven Bay*, you have from 11 fathoms to 5, until you bring the said tree S. W. When you bring *Willoughby's Point* S. W. you are abreast the shoal called the *Horse-shoe*, which is not above $\frac{1}{2}$ a mile broad.

From Cape Henry or Lin Haven Bay to York River.

FROM *Cape Henry* to *Lin Haven Bay*. If you run in, you have gradual soundings, having the cape S. S. E. In standing to the northward, you will come on the shoalings of the *Horse-shoe*, which is likewise gradual in turning in. Endeavour to keep the channel, for the benefit of the tide. You will have $7\frac{1}{2}$ and $6\frac{1}{2}$ fathoms water, soft oazy ground; and when you have but $5\frac{1}{2}$, it is hard sand: you then have

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have an eddy that sets you contrary to expectation. The first of the flood sets to the S. W. for which reason, you must not keep the main nearer than $5\frac{1}{2}$ or 5 fathoms. You may borrow on either side to 4 fathoms, but it will not avail you much, on account of the eddies. You must observe in running up to Keketan, to keep the cape S. S. E. and Point Comfort W. that is the west point of it. If you ride in the bay, the best of the road is E. S. E. or E. by S. from the cape, in $5\frac{1}{2}$ or $4\frac{1}{2}$ fathoms water. Endeavour to keep your marks, and you have from $5\frac{1}{2}$ or 7 fathoms, by reason of a swatch that runs within the channel fair by the shore, which may deceive you. You will have, in running in with the former bearings, the shoal point to the westward of Willoughby's S. W.

There are three houses, which you will see over Point Comfort, which you must take notice to keep W. N. W. If you have sight of the cape, and abreast of Willoughby's Point, you must edge over to Point Comfort, and you will have from $6\frac{1}{2}$ to 10 and 17 fathoms water. The point after, above the Horse-shoe, is bold, only some knowles, which lie within, or to the eastward of the Horse-shoe, which are steep-to; to shun which, after you are in deeper water, edge to the Sword, and keep in 10 or 12 fathoms water; and when well shut up, haul in with Point Comfort, and run up S. W. until the point bears N. E. or N. E. by E. and there anchor in 17 fathoms abreast of Hampton Haven; but within and above that, you have but 5, 6, and 7 fathoms. From the west point of Point Comfort, and the next point of land on the north side, is shoal water, and all sand.

To run off Lin Bay to York River, and shun the Middle Ground, bring Cape Henry S. S. E. and keep your course N. by W. and N. with the flood tide, until such time as you come to the other side in $4\frac{1}{2}$ fathoms; then you are upon the head of the same bank; and when you bring Point Comfort west, you are then just over in 5 or 6 fathoms: you may steer N. N. W. and N. W. by N. It is very dangerous to come into York River; there is a great shoal at the mouth, on the starboard side going in: it is pretty steep-to, as 6, 7, or 8 fathoms; but on the larboard side it is flat, and a point of drowned land. It is but a mile and half in breadth at the mouth of the river; but when you are in, it is wide, and roomy enough.

From New Point Comfort to Potowmack River.

A spit extends from this point S. E. $\frac{1}{2}$ E. 2 miles, which you will avoid by not going into less than 4 fathoms water. About 3 leagues N. N. E. $\frac{1}{2}$ E. from New Point Comfort, and 2 leagues from Iron Point, lies the Wolftrap Rock, on which there are 12 feet at low water; between this rock and Point Comfort, there are 8 and 9 fathoms. From this spit, which runs off from New Point Comfort, to the entrance of Rapahanock River, the course is N. by W. and the distance 6 leagues. You may keep in 5 or 6 fathoms water. Near to the Wolf-trap Rock, there are 7 fathoms.

From Rapahanoc to the flat which spits off from Wicomico Point, the course is north, distance 6 or 7 leagues; good soundings, as 5 or 6 fathoms water 4 miles off. Be careful as you approach Wicomico, to keep rather nearer the eastern than the western shore. To be clear of the shoals on the point, you should not go into less than 7 fathoms. This shoal extends about $2\frac{1}{2}$ miles E. S. E. from Smith's Island, on its extremity, there are only 2 fathoms water; and very near it eastward, there are 10 or 12 fathoms. A House, with a white chimney standing among the trees on the shore within Smith's Island, is the mark for the shoalest part of this sand, open to the northward of the island, and bearing west. When this house bears W. by N. you are to the southward of the extremity of the shoal, and when it bears W. by S. you are to the northward of it. What adds to the danger of this shoal, in going up or down the *Chesapeake*, is, the broken islands, which lie on the east side of the channel, and the flats of sand, which extend from 5 to 8 miles to the westward from them. The land of these islands is low, with several tufts of trees on them. The easternmost is called Hooper's Island; it is about $3\frac{1}{2}$ leagues in length; a little to the westward of it lies Barren Island. To the

the southward of Hooper's Island lie Tangier Islands, they extend about 8 leagues in length; and to the southward of Tangier Islands, lie Watt's Islands, they are small, and extend about 2½ leagues. Between the south end of Hooper's Island and the northernmost of the Tangier Islands, there is a passage for Nanticoke River, called Hooper's Straits; and at the north end of the southernmost of the Tangier Islands, there is another passage called Tangier Straits. To the eastward of Watt's Island, lie Potowmack Bay and River.

Virginia is separated from Maryland by Potowmack River; its entrance is formed by Wiconico Point on the south side, and Point Look-out on the north: it is about 3½ leagues distance between these two points.

If you are bound to St. Mary's River, you must keep nigher the main, than the shoals which come away from St. George's Island; being a fine birth from the starboard side, your course is N. W. into the river, and you will have 5 or 6 fathoms; and then anchor, the river being all open to you.

If you are bound to Wiconico in Potowmack River, you must give it a good birth off above Clement's Island; for off it, are two or three small islands, which lie to the eastward of the River Wiconico, also broken ground; and when you come nigh the river, you must keep the island on the starboard side, and you will find 4½ fathoms water. After a great way, you will have but 3 fathoms. Going into this river are two points, and to sail clear of both, you must steer up W. N. W. till you have the river open then north of Newton's Point. Anchor on the south side of the point in 5 and 4½ fathoms water. Be sure to give all the points a birth in all Maryland, in the Bay, and all the rivers.

Directions for James River.

CAPE HENRY is a bluff sandy land, with a single tree or two on it separate from the rest; but Cape Charles is an island. Between the capes lie the Middle Ground, about two thirds over from Cape Charles to Cape Henry; therefore it is advisable to keep over to Cape Henry. If bound up James River, keep Cape Henry E. S. E. and run up W. N. W. but when you come almost abreast of Willoughby's Point, look for the House on Point Comfort, and keep that N. W. by W. and run in with it so, until you are in the deep water, and bring Point Comfort W. by S. or W. ½ S. then you may run in with it, giving the point a small birth. It is steep close-to, and anchor in Hampton Road, bringing Point Comfort N. E. by E. or thereabouts. In turning in, be very careful not to stand too far in when near Willoughby's Spit, for fear of being hooked in to the eastward of it, in the Bite, and when farther in, you will have deep water on both sides, and so on, according to your own judgment, not less than 11 fathoms to the said shore.

Particular Directions for York River.

BRING Cape Henry any where between the S. by E. and S. E. Cape Henry S. by E. you are on the Tail of the Middle, and the Cape S. E. you are on the shoalings of the Horse-shoe; the Horse-shoe has very good shoalings all the north side; keep in N. N. W. or N. W. by N. till you have Cape Charles E. by N. then you may bear away N. W. or N. W. by W. as you have the wind and tide. Observe ebb tide sets strong out of Chesapeake Bay over the Horse-shoe, so that if the wind is northerly, you must not come nearer the Horse-shoe than 5 or 6 fathoms if you can help it; when you have the New Point Comfort north, and Back River Point S. by W. then you are abreast of the tail of York Spit, in three fathoms; and when you are a little above Long Isle, you must come no nearer the main than 7 fathoms, till you come to enter the river above the Marth; keep in 9 or 10 fathoms, and run up and anchor between York and Gloucester, in what depth you please: in turning up, stand to the Horse-shoe, into 4½ or 5 fathoms, and off into 7 or 6½, till you are abreast of the entrance of New Pocoman, where you will have

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have a gut of 7 fathoms, run close to the entrance, therefore be very careful not to be caught in with the tail that comes from Taos Math; when up here, come no nearer than 7 fathoms or $6\frac{1}{2}$, all the way up to York. nor to the other side, than 10 or 11; when abreast of the small isles on York Spit, the tail of the spit has but 7 fathoms, close to it and about the middle 10 fathoms, close to it and abreast of the islands you have 13 fathoms and a shore; when entered the river, you must come no nearer the bank than 8 or 9 fathoms, the bank is about one third of the river over from the north shore, observe the Chart for more soundings.

Directions for going into Patuxent River.

If you come down the bay to the River Patuxent, give Cow Point a good birth, till you have opened the river; then run right up for Drum Point, which is without Cooper's Creek; and if you go up higher, give a birth to Alkom's Point.

If you come up the bay for Patuxent River, you must give a good birth from the south shore, and when above Cedar Point, the south side of the mouth of Patuxent is all open: The south side of the river is shoal as high as Baltimore Bay, keep as high as you can in the middle of the river, only giving a birth for the points.

In coming up or down the bay, you must come no nearer than $4\frac{1}{2}$ on the eastern shore, and on the western than 5 or 6 fathoms.

About three leagues to the northward of great Wicomico, lies little Wicomico, which makes the south point of Potowmack River; there is a small island near the shore called Smith's Island, from whence shoots off a dangerous spit of sand about 4 or 5 miles east into the bay, in which is but two fathoms, of water, and less; and at the east end thereof 10 or 12 fathoms steep to the sand.

For the mark of this dangerous shoal. Note, there is a house on the shore, within the aforesaid little island, with a white chimney among the trees; bring that open to the northward of the island, and when it bears west from you is the shoalest of that sand, and when to the W. by N. or W. by S. are off from the shoal; if you steer north or south, this shoal is the more dangerous, because of several broken islands that lie to the eastward of it in the midst of the bay, from which lies off several flats and spits of sand of about 3 fathoms, three or four miles off, and steep to 10 or 12 fathoms.

These islands are low lands, with several hummocks of trees, the easternmost of which is called Tangier Island, lying athwart of Wicomico, a flat spit of sand lying from it, spitting to the southward off, near as far as Rapahanock, whereon is 5 or 6 fathoms water; but within 3 or 4 miles of the said island is three fathoms (on the east side of this island is the going into Pocomok and Nanticoke).

The shoal of this island is long and broad, and divided into spits; for as the east end hath a spit about three leagues long to the eastward, and about 2 leagues broad, so on the S. W. side of the island, which shews like a point or bluff of trees, spits off a long shoal to the S. W. on which is but three fathoms, about four miles off. There is deep water of 6 or 7 fathoms between these two spits, and soft ground, so that such as sail by course up the bay by night, for fear of Wicomico Point, should steer more to the eastward than ordinary, lest they fall between these two spits, and be at a loss; where you find suddenly but three fathoms, and the like depth to the eastward or westward on these points or spits, and such broken ground lies along to the west of these broken islands, where about 3 or 4 miles off, is 3 or 4 fathoms; and from these you will deepen suddenly to 12 or 14 fathoms water, and in some places 20 fathoms near these shoals; but the best of the channel is 12, 10, 9, 8 fathoms, soft ground. And a north course, as aforesaid from the cape, within the hummocks, bearing south, will carry you clear between the islands and shoals of Wicomico Point.

That Point being the south side of Potowmack that divides Virginia and Maryland, and on that S. side are several shoals in the mouth of Potowmack: From the said point over to Point Look-out is about 7 leagues, where to shun those shoals, steer up Potowmack River, or up the bay for Maryland. From the said Wicomico

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Point

Point you must steer N. by W. or N. N. W. for the said Point Look-out, where also lies a shoal; and if you would sail up St. Mary's, you must shun several shoals that lie on the north side within Point Look-out; but from Point Look-out up the bay above 3 leagues to the northward, lies St. Jerom's Point, off which lies a shoal, 4 miles off the shore; and 4 leagues more to the northward is Cedar Point, being low sandy ground, and dragging trees lying on the south entrance of Patuxent River, from which lies a spit, and is all flat within the point; on the north side of the said river are high hills, called cliffs, with trees on them; and from that shore lies a long flat, but good soundings on both sides the channel, soft ground, 7 and 8 fathoms water. More inwardly is Roulbey's Point on the south side, and Drum Point on the north point of Low Sand. Ships may anchor without these points, or sail further into the river; always observing it for a general rule, that where a point of land is, and especially low ground, there lies off a spit of sand and shoal.

Cape Hatteras.

CAPE HATTERAS lies about S. $\frac{1}{2}$ E. 37 leagues from Cape Henry; between them lie the inlets of Currituck and Roanoke: in the former there are 10 feet water, and in the latter 8 feet. About $6\frac{1}{2}$ leagues N. by E. $\frac{1}{2}$ E. from Cape Hatteras, lies the south end of a bank, on which there are 5 and 4 fathoms water: it extends north and south nearly 3 leagues, and is about $2\frac{1}{2}$ miles broad. The inner edge of this bank is about 3 miles from the shore: between them there are 10 and 9 fathoms water. Close to the south end, and along the outer or east side, there are 7 fathoms. About 3 miles N. by W. from the north end of this bank, and 3 miles E. by S. from the north end of Hatteras Island, there lie some small knolls, on which there are only 9 feet at low water.

The shoals of Cape Hatteras extend 10 leagues E. S. E. from the cape, and are from N. N. E. to S. S. W. $5\frac{1}{2}$ leagues, at the broadest part: near to them, on the north side, there are from 6 to 9 fathoms; near to the east end, there are 9 and 10 fathoms; and near to them, on the south side, there are 20 fathoms. There is a channel between the cape and the shoals, in which there are from $2\frac{1}{2}$ to 4 fathoms water. This channel or swatch lies about S. W. by S. and N. E. by N. in going through it, you will pass the light-house on the cape at the distance of $\frac{1}{2}$ miles: as the sea generally breaks on the shoals on each side, you will see the swatch. Your course from Cape Henry to the outer end of the shoals, is S. by E. $\frac{1}{2}$ E. and the distance about 39 leagues.

Twenty-three leagues from Cape Hatteras, Cape Look-out bears S. by W. $\frac{1}{2}$ W. and about $7\frac{1}{2}$ leagues S. W. $\frac{1}{2}$ W. from Cape Hatteras, is Occacok Inlet, in the entrance of which, there are from 17 to 13 feet water. Between the two capes, there are very regular soundings, in from 8 to 5 fathoms water.

The shoals from Cape Look-out extend $4\frac{1}{2}$ leagues S. by E. $\frac{1}{2}$ E. from the cape, and are about 3 miles across: close to them on the east side, and off the outer end, there are 5 fathoms water; near to them, on the west side, there are from 5 to 9 fathoms. The outer part of these shoals lie 25 leagues S. W. $\frac{1}{2}$ S. from Cape Hatteras; and 30 leagues S. W. by W. $\frac{1}{2}$ W. from the outermost part of Cape Hatteras shoals. The deepest water between them is about 30 fathoms.

The entrance of Core Sound is about $3\frac{1}{2}$ leagues N. W. by W. from Cape Look-out, in which there are 3 fathoms water. The channel lies in, first N. E. by E. and then alters gradually round the flat, which extends from the island on the larboard or west side, to the N. N. W. $\frac{1}{2}$ W. You will have 3, 4, and 3 fathoms in the channel, as you proceed to Beaufort, where you may anchor in 3 fathoms at low water.

From Cape Look-out 26 leagues S. W. by W. $\frac{1}{2}$ W. lies Cape Fear. Between the two capes there are islands lying all the way along the shore, off which, about 2 leagues distance, there are from 5 to 9 fathoms water. About $10\frac{1}{2}$ leagues to the westward of Core Sound, is the entrance of New River, in which there are only 5 feet at low water. On each side of this entrance, there are two inlets, on which there are from 7 to 11 feet water.

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The shoals of Cape Fear extend about $7\frac{1}{2}$ leagues S. E. by E. $\frac{1}{2}$ E. from the Cape; they are about 3 miles broad. On the inner part of the shoals, there are 6 feet water; and on the middle part, there are only 5 feet water: near to them every where, there are 5 or 6 fathoms: About 4 miles to the southward of their extremity, there are 13 fathoms. The entrance of Cape Fear River is about 5 miles to the westward of the cape; there are 3 fathoms in it at low water.

Cape Fear Light-house.

*Treasury Department,
Revenue Office, April 10, 1795.*

The following abstract from documents on file in this Office, is published for the information of Commanders of Vessels in the trade of the United States.

Doyle Sweeney, Principal Clerk.

CAPE FEAR LIGHT-HOUSE is situated near Bald Head, a noted bluff on Cape Fear Island, at the mouth of Cape Fear River, on which river is built the town of Wilmington. The iron lamp is ten feet nine inches in diameter, and about fifteen feet nine inches in height, from the floor to the top of roof. It was first lighted Dec. 23, 1794.

From the point of the cape, the Light-house bears W. N. W. distance 4 miles; and from the extremity of Frying-pan Shoal, N. W. 8 leagues.

In sailing from the eastward, bring the Light to bear N. N. E. and then steer in N. which will carry a vessel clear off the shoal, and bring her a short distance westward of the bar. Observe, however, if it is night, not to go within less than 7 fathoms water.

If it be necessary to sail over the bar without a pilot, bear N. or N. $\frac{1}{2}$ E. and steer directly in for it, until the vessel is close in with the beach; and then in for the fort, which bears from thence about N. and is plainly in sight.

The channel over the bar is direct, and of good width.

It may be necessary to observe to strangers, that in passing the shoal, especially in a dark night, it is most prudent to steer W. in latitude 33 deg. 20 min. or 25 min. at most, until they shoal in their water to 7 or 8 fathoms: by doing this, they may be sure of being to the westward of the bar.

REMARK.

It is not expressed in the above, whether the bearings are the true or the magnetic bearings: I rather suppose them to be the latter; but the difference is so trivial, as not to require notice: I believe it is less than a quarter of a point, and now decreasing.

Speaking of the variation, it may be observed, if I mistake not, has decreased as follow: In longitude 74 deg. latitude 45 deg. 30 min. the westerly variation, in 1723, was 7 deg. 20 min. and in 1780, but 1 deg. In the same longitude, and latitude 38 deg. 45 min. in 1748, it was 4 deg. and in 1778, but 2 deg. 30 min.

That it had decreased at Quebec in 1793, seems indisputable. In 1785, it was there 12 deg. 35 min. and in 1793 (by a mean of many compasses), but 12 deg. 5 min. The difference is but small, but it appears demonstrated. See *Lorimer on Magnatism*, 4to. p. 34.

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TO MASTERS OF VESSELS.

A nautical correspondent informs masters of vessels, bound to northward of Cape Hatteras, and especially those who fall in about the cape, and are any wise short of provision, that in latitude 35 deg. 36 min. and about the longitude of the cape, there is a large muscle bank, intermixed with cockles, and small pebbles, lying in 5 fathoms water: That bank abounds with fish, such as sea-bass, sea-trout, flounders, skate, tusk, and dog-fish. The sea-bass here are remarkable for their size, generally weighing from 4 to 6 pounds each.

A vessel has filled two barrels on this bank in the space of two hours, with only three lines and three hooks, and there is no doubt, if two hooks had been applied to each line, double the quantity might have been caught. The water upon this bank differs very little in colour from the ocean, and at the height of winter is very little colder. There is likewise to be caught, in the winter season, fish, by towing over this bank; that is, if you have suitable bait, such as the bailabo, which they generally have in the West-Indies. You must be sure to have good tackling, as the fish are remarkably strong, commonly weighing from 20 to 30 pounds each. Four or five lines have been lost in an hour, and at last have been obliged to bend the dipping-line to the inner end of the tow-line; and luffing the vessel into the wind, the fish has been taken. No common towing will hold them, except you use the foregoing method. They are supposed to be overgrown blue fish.

Directions for the Coast of North Carolina, coming in from Sea.

STEERING for this coast, endeavour to keep a degree to the southward of the latitude of the place you intend to make, until you reckon yourself on the edge of the Gulf Stream. Your own judgment will then direct you what course is best, according as you find the wind to blow. Do not, if possible, go to the northward of 33 deg. 20 min. latitude, until you get into 10 fathoms water. In this depth you will be within the south, or outer end of the Frying-pan Shoal, which lies in latitude 33 deg. 33 min. In nearing the coast in 33 deg. 20 min. latitude, your first soundings will be from 30 to 35 fathoms; in this depth you will be very near to the inner edge of the Gulf Stream. You will have fine grey sand with black spots, when you get into 17 fathoms: there is a long flat in this depth of water. In steering west, you will, for the first 5 or 6 leagues, shoalen the water very little. When you come into 14 fathoms, you will shoalen your water quicker, but gradually. You will see the land in 10 fathoms water, if the weather be clear, and you may then be sure that you are within the Frying-pan, from the outside of this shoal. You can see no land bearing to the westward of north-west.

To go over Cape Fear Bar, you must take care not to bring the pitch of the cape to the eastward of E. by N. until you have brought Bald Head to bear N. $\frac{1}{2}$ E. the channel over the bar will then be fairly open; and if the weather be so bad as to prevent your getting a pilot, you may steer in N. $\frac{1}{2}$ E. without danger: at such times the middle ground on the larboard side, and the fingers on the starboard side, will shew themselves very plain by the breakers. Three fathoms is the least water on the bar: at half flood you may venture to go in.

Eighteen leagues S. W. $\frac{1}{4}$ W. from Cape Fear is George Town Entrance, or Winyah Harbour: a bank lies between them on which there are 5 fathoms water. The north end of this bank lies about $5\frac{1}{2}$ leagues S. W. by W. from Cape Fear: it thence extends S. W. $\frac{1}{2}$ S. $8\frac{1}{2}$ leagues. The N. W. or inner side of this bank, is about 4 leagues from the shore; near to this edge, there are 10, 9, and 8 fathoms water: as you advance towards the shore it shoalens gradually. This is called Long Bay: near to the north end of this bank, there are 10 fathoms water; along its S. E. side, there are 8, 7, and 6 fathoms. There are several shoals to the southward of this bank,

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About $5\frac{1}{2}$ leagues S. W. by S. from George Town Entrance, or Winyah Harbour, lies Cape Roman, and between them the entrances of Santee River. The south entrance is $2\frac{1}{2}$ leagues from the entrance of George Town River, and 3 leagues from Cape Roman. Ships that fall in with the shoals off George Town Entrance, should not come into less than 4 fathoms water: you are then about 10 or 12 miles from the land. The muddy appearance of the water is apt to frighten strangers, though there is no real danger to be apprehended: the latter here is low, and appears, when seen at a distance, in hummocks, like a range of islands.

*Cape Roman is a very low land: it has neither tree nor bush, and appears, when seen at a distance, to be a land left dry by the tide. From the south entrance of Santee River, to about 2 miles S. W. of Cape Roman, there is a shoal which extends a considerable distance from the land: the S. E. point of it lies about 4 leagues S. E. $\frac{1}{2}$ E. from the south point of George Town Entrance, and the S. W. point lies about 3 leagues S. E. by S. from Cape Roman. Close to this dangerous land, there are 4 and 3 fathoms: the land is so low, that you cannot see it from the deck of a ship, at the extremity of the shoal.

Steer W. N. W. from the S. W. part of the shoal, and you will soon see the island, called Racoon Keys: it is a long narrow island, and lies about W. by S. from Cape Roman. When you see Racoon Keys Islands, steer W. S. W. or S. W. by W. in about 5 fathoms water. As there is a shoal runs off about 5 miles S. E. by E. from the N. E. end of Bull's Island, you should take care to avoid it in passing. Between Racoon Keys Island and Bull's Island, lies Sewee Bay. As there are shoals lying off the west end of Racoon Keys, you should anchor near to Bull's Island, in 6 fathoms water.

From the shoal off the N. E. end of Bull's Island, to Charlston Bar, your course to go clear of the Rattle Snake, is S. W. by W. $\frac{1}{2}$ W. and the distance 7 leagues. There are four islands between Sewee Bay and Charlston Bar, namely, Bull's, Cooper's, Devies, and Long Island. There are flats extending from all the islands, along which the soundings are regular. With Charlston Churches to the northward of Sullivan's Island, you will be in $5\frac{1}{2}$ fathoms water, on the edge of the Rattle Snake; and when the churches are open to the southward of Sullivan's Island, you are clear of the Rattle Snake. You should come no nearer to this shoal than 5 fathoms water.

N. B. The best going into Charlston Harbour, is an hour and a half before high water. In sailing, you must keep the breakers on board, but come not nearer to them than 7 or 6 fathoms, for they are deep, and you may have 6 fathoms, and the next minute call on shore.

The depth of water on Charlston Bar at *low water neap tides*, is $12\frac{1}{2}$ feet; at *high water neap-tides* $17\frac{1}{2}$ feet; at *low water spring tides* $11\frac{1}{2}$ feet; at *high water spring tides* 19 feet.

From Charlston Bar to Port Royal.

OFF Charlston Bar, in 5 fathoms water, to North Eddisto Inlet, the course is S. W. by W. $\frac{1}{2}$ W. and the distance $5\frac{1}{2}$ leagues. This course will carry you clear of the shoals which lie off Stono Inlet, they lie farther out than any that are in your way to Eddisto. Stono Inlet is about 2 leagues from the south channel of Charlston; there are two islands between them, viz. Morris's Island on which the light-house stands, and the island called the Coffin Land. With the light-house open off the Coffin Land, you will clear the Stono Shoals in 6 fathoms water. But if you shut the light-house in with the Coffin Land, you will not have more

* A windmill has lately been erected on the point of Cape Roman, which at a distance having the appearance of a light-house, especially in hazy weather, will easily deceive strangers, who, for want of exact latitude in approaching the coast, may mistake it for Charlston Light-house. In falling in with this windmill, you must not come into less than 7 fathoms water, bringing it to bear W. N. W. Then you are abreast of the Cape Shoals, and Charlston light-house will bear W. S. W. about 15 leagues,

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than $5\frac{1}{2}$ fathoms off Stono Shoals: you will pass close to the breakers, and consequently be in danger: you may know where the shoal is by the breakers, unless the sea be smooth. There are 9 or 10 feet at low water in Stono Inlet. From Stono Inlet to North Eddisto Inlet, the course is S. W. by W. $\frac{1}{2}$ W. and the distance 11 miles; the soundings are regular between them, and shoal very gradual when you are coming from the offing towards the shore. The bar of North Eddisto, and the shoals which are near it, lie off about 4 or 5 miles from the land: there are 3 and 4 fathoms water close to the bar and shoals, and on the bar 9 or 10 feet at low water. South Eddisto is 3 leagues from North Eddisto W. S. W. The shore of the islands which lie between them may be approached by your lead without danger: the shoalings towards it are gradual.

Note, To enter North Eddisto Inlet, you are to bring Bear Bluff in one with the Woodland on Tucker's Island N. W. by N.

St. Helena Sound.

BETWEEN South Eddisto Island and the northernmost Hunting Island, lies the entrance of St. Helena Sound: it is about 2 leagues wide. This place is only navigable for vessels drawing 7 or 8 feet water: is full of sand banks, some of which are dry at low water. Six navigable rivers empty themselves into this sound, viz. South Eddisto, Ashepoo, Cambahee, Chehaw, True Blue, and Corfaw. Some of these rivers come 200 miles down the country, but few of them can be navigated by vessels of 6 feet water, for more than 38 or 40 miles from the sound. The course is S. W. $\frac{1}{2}$ S. from the entrance of St. Helena Sound along the Hunting Islands, to the entrance of Port Royal, and the distance about $5\frac{1}{2}$ leagues. You will have 5 or 6 fathoms water, with regular soundings.

Port Royal Harbour.

COMING from sea for Port Royal Harbour, you should get into the latitude of St. Michael's Head, which is 32 deg. 6 min. N. then steer W. for Hilton Head, and when you come within 15 leagues of it, you will have from 20 to 25 fathoms water. Continue your course west till you make the land, which you will do, if the weather be clear, at the distance of 6 leagues, in 12 fathoms water: hereabouts the land is low, with high trees upon it. The entrance of Port Royal is known by a small grove of trees, which stand on the north side of it; they rise above all the other trees like a high-crowned hat, hence this grove is called the Hat of Port Royal. Continue to steer as before, keeping your lead going, until you get into 8 fathoms water; you will then be about 3 leagues from St. Michael's Head. You may then steer a point to the southward of the west, until you get into 5 fathoms water; then more southerly, observing not to bring St. Michael's Head to the northward of N. W. by N. until you see the great north breaker called Cole's Care, close to which there are 4 fathoms water; leave this shore on the starboard side. In approaching this breaker from the northward, you will see another breaker to the southward called Martin's Industry: between these two breakers is the entrance of the channel into Port Royal Harbour, which is about a mile wide. The mark to go clear of the north breaker, is a parcel of trees, which stand near the mouth of the River May, and appear like an island kept just open of Elizabeth Point. Your course through, between the two shoals, is W. $\frac{1}{2}$ N. or W. by N. there are not in this channel less than $3\frac{1}{2}$ or 4 fathoms at low water. Continue to steer as aforesaid between the two breakers, until you bring St. Philip's Point to bear N. N. W. then steer directly for it, and you will have, as you advance, 9, 8, and 7 fathoms water. When abreast of St. Philip's Point, give it a small birth, and steer up N. by W. $\frac{1}{2}$ W. in 6 and 5 fathoms water, in which depth you may anchor in a very safe harbour.

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Between Martin's Industry and Gaskin Bank, there is also a channel called the South Channel, in which there are not less than 12 feet at low water. To go through this channel, when in 7 fathoms water, you must bring Hilton Head to bear N. W. by N. and then steer, with an ebb tide, N. W. and with a flood tide N. W. by N. until St. Philip's Point bears N. by W. $\frac{1}{2}$ W. you may then steer for the Point, and proceed as before directed.

The east end of Joiner's Banks lies about $3\frac{1}{2}$ miles S. E. from Hilton's Head, and 4 miles S. by E. from St. Philip's Point; and extends from thence W. N. W. about $2\frac{1}{2}$ miles, and has $3\frac{1}{2}$ fathoms on it at low water. Hilton's Head is on the south side of the Harbour, and is the highest bluff point of land thereabouts.

Five leagues S. W. $\frac{1}{2}$ W. from the entrance of Port Royal, south channel, lies Tybee Inlet; between them is Hilton's Head Island: from this island the Gaskin Bank extends about 8 miles; at the broadest part you may proceed along this bank in 5 fathoms water.

It will be as well, if you are bound to Port Royal, to make the land about Tybee, as the light-house makes that part of the coast more distinguishable than any other; it is a large wooden tower, without any light kept in it. Tybee inlet is the entrance of Savannah River. Ships which draw 14 or 15 feet water, may go in at Tybee, and proceed through-land to Beaufort, in Port Royal Island; and from thence in vessels that draw 8 or 9 feet water, may go through land to Charleston; and from Charleston in vessels of 7 or 8 feet water, may go through-land to the River Medway, in Georgia.

It is observed on this coast, that N. E. easterly, and S. E. winds, cause higher tides than other winds, and also somewhat alter their course. At Port Royal entrance, the tide flows, on the full and change of the moon, at $\frac{1}{2}$ past 8 o'clock. About 6 leagues from the land in 12 fathoms water, the flood sets strongly to the southward, and the ebb to the northward: at a great distance from the shore, there is no tide at all. Near to the entrance of the harbour, there is a strong in-draught during the flood tide, and an outset with the ebb.

ASTRONOMICAL OBSERVATIONS.

Names of Places.	Longit. W. of London.			Latitude.			Observers.
	D.	M.	S.	D.	M.	S.	
Cape Hatteras	00	00	00	35	7	50	Capt. Gascoyne.
Cape Hatteras Shoals, } (south end)	00	00	00	34	48	00	{ Inferred from that of the Cape, by ditto
Cape Look-out Shoals, } (south end)	00	00	00	34	11	00	The King's Ships
The Frying-pan, or south } end of Cape Fear Shoals	00	00	00	33	30	42	{ Mr. Wheatly in 1752; Mr. D. Dunbabin 1760; and Capt. Potts in 1765.
The Bar of Cape Fear } River	00	00	00	33	50	00	{ Mr. Wheatly and Mr. Daniel Dunbabin
Cape Roman	00	00	0	33	4	00	{ Nicholas Pocock and the Pro- vincial Surveyors
Charlston's Ship Channel	00	00	00	32	43	00	The King's Ships and Surveyors
Tybee Light-house	80	56	00	32	00	41	{ Monf. De Chabert, with the ma- rine clock.

Observations on the Winds, &c. on the Coast of South Carolina.

If the wind blows hard from the N. E. quarter, without rain, it commonly continues so for some time, perhaps 3 or 4 days; but if such winds are attended with rain, they generally shift to the E.—E. S. E. and S. E. South-east wind blows right in on the coast; but they seldom blow dry, or continue long: In 6, 8, or 10 hours after their commencement, the sky begins to look dirty, which soon produces rain. When it comes to blow and rain very hard, you may be sure the wind will fly round to the north-west quarter, and blow hard for twenty or thirty hours, with a clear sky.

North-west winds are always attended with clear weather; they sometimes blow very hard, but seldom for longer than 30 hours. The most lasting winds are those which blow from the S. S. W. and W. N. W. and from the N. to the E. N. E. The weather is most settled when the wind is in any of these quarters.

In summer time, thunder-gusts are very common on this coast; they always come from the north-west quarter, and are sometimes so heavy, that no canvas can withstand their fury: they come on so suddenly, that the greatest precaution is necessary, to guard against the effects of its violence.

From Tybee Inlet to St. Simon's Head, the course is S. by W. $\frac{1}{2}$ W. and the distance 16 leagues; and from Tybee Inlet to the bar on the entrance of St. Simon, the course S. by W. and the distance 19 leagues. Between them are the following sounds, namely, Waffaw, Ossabaw, St. Catherines, Sapello, and Little Simon's Sound. In going from Tybee for St. Simon's Sound, you will have from 4 to 7 fathoms water. The shore of the several islands which lie between them is flat, and the shoalings as you approach are gradual.

Nine or ten miles from St. Simon's Fort, lies St. Simon's Bar: the fort is on the south end of St. Simon's Island, and by its white appearance, makes this place remarkable. To the southward of the fort, about $1\frac{1}{2}$ miles, is the south end of Jekyll Island; is easily known by the trees, which have the resemblance of an umbrella, and are therefore called umbrella-trees. The marks for sailing over the bar, are a large round tree, which stands to the westward of the sound; right on with the middle of the opening between St. Simon's and Jekyll's Island; bring also the three trees, which stand together to the westward of St. Simon's Fort, just open to the southward of the fort, and then steer west, until you are over the bar. At three quarters flood on the bar, you will have about 19 feet water. The width of the bar is about $\frac{3}{4}$ of a mile; the extremities of the sand on each side, generally shew themselves by the breakers. The North Break Head and the South Break Head, bear off each other S. E. by E. and N. W. by W.

Come no nearer to the North Break Head, than half a cable's length. The ground on the bar is hard, but soft without and within the bar. When the south end of Jekyll Island bears S. W. $\frac{1}{2}$ W. the N. E. point of St. Simon's Island, called St. Simon's Head, N. by W. and the round tree which stands to the westward of the sound, is on with the middle of the opening between Jekyll Island and St. Simon's Island, you are on the middle of the bar. When you come into $4\frac{1}{2}$ fathoms water, you are within the bar, and should steer W. by N. $\frac{1}{2}$ N. In the fair way, there is a middle ground, but you need not be afraid of it, as there are always 3 feet more water on it than on the bar.

Give the fort in passing it a birth of about a cable and a half's length, and anchor with the fort bearing E. by S. in 13 fathoms water. You will then be about $\frac{3}{4}$ of a mile from it.

The tides on the full and change of the moon, are as follow: In the sound, 9 o'clock; on the bar, $\frac{1}{2}$ past 7, and in the offing, $\frac{3}{4}$ after 6 o'clock.

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St. Mary's

St. Mary's River, or Prince William's Sound, called also Amelia Sound.

THE bar of St. Mary's, or the entrance of Prince William's Sound, lies about $7\frac{1}{2}$ leagues S. by W. from St. Simon's Bar: between them you will have 5 or 6 fathoms water. Run to the southward, until you bring the northernmost of the three Sand Hills, which you will perceive on the north end of Amelia Island, half a cable's length to the northward of the southernmost Umbrella Tree, on that island, and you will then have the bar open. On the bar the tide rises 5 feet perpendicular on a spring tide. The north channel is only a large swash, and unsafe for any vessel drawing above 10 feet water to attempt at high water. In failing through the south channel, if you have a flood tide, keep as near the south breakers as you can. The flood setting strong to the northward, on the ebb, you will find the tide setting to the S. E. When you are on the bar, the north end of Amelia Island will bear W. by N. distant $3\frac{1}{2}$ miles, and the southernmost part of Cumberland Island W. N. W. $\frac{1}{2}$ W. distant $4\frac{1}{2}$ miles, steer W. N. W. $\frac{1}{2}$ W. The North Breaker generally shows itself; it is sometimes called the middle Breaker: there are not less than 12 feet at low water. Between the bar and the south end of Cumberland Island, there are 4 or 5 fathoms: this is called the south Channel. There is another called the North Channel: it lies near to the south east point of Cumberland Island.

The north channel has two bars, called the Outer and Inner Bars, with only 6 feet on them at low water. In order to go over in the best of the water, bring the N. W. point of Amelia Island to bear S. by W. $\frac{1}{2}$ W. and then steer for it, until you have passed through between Cumberland's Island, and the North Breakers.

Harbour of St. Augustin.

ST. AUGUSTIN lies from St. Mary's Bar S. by E. $\frac{1}{2}$ E. 20 leagues. There are two rivers lie between them, viz. Nassau and St. Juan's. The bar or entrance of Nassau lies 5 leagues to the southward of St. Mary's: there are 5 fathoms water between them.

All ships bound for Nassau River, or out of it, ought to sound the cannon before they venture on the bar, as all the banks and shoals are quicksands, and subject to change in strong gales from the sea, or freshes out of the river. The tide rises about 4 feet, and runs very strong, particularly the ebb.

The sands at the entrance of Nassau River lie 3 miles off from the S. E. point of Amelia Island, and the same distance from the N. E. Point of Talbot Island. Three leagues to the southward of Nassau, lies the entrance of St. Juan or St. John's River; between it and St. Augustin's the shore is bold, and you will have 5 or 6 fathoms within $\frac{1}{2}$ a mile from the shore. When abreast of Cartel Point, you open the Bay of St. Augustin's, when the fort, which is large and white, bears W. by N. distance 8 miles, you will have about $7\frac{1}{2}$ fathoms water. Before St. Augustin lies the north end of St. Anastasia Island.

The bar of St. Augustin is formed by the extremity of a narrow sand, which extends 2 miles E. S. E. from Cartel Point, and the point of another sand, which extends $\frac{1}{2}$ a mile E. by N. from the N. E. point of St. Anastasia Island. This bar is little more than a $\frac{1}{4}$ of a mile wide, with a small shoal lying in the middle, and which divides it into two channels, called the North and South Bars; there is not more than 12 feet on either of them at high water, spring tides. On the north end of

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St.

St. Anastatia's Island, is a light-house which will be seen in the small plan of the Harbour of St. Augustin, in the margin of the General Chart.

At the south end of St. Anastatia's Island, and 6 leagues S. S. E. $\frac{1}{2}$ E. from St. Augustin's Bar, lies Matanza Inlet. There are only $8\frac{1}{2}$ feet, on the shoalest part of the bar, at high water. Vessels which go in at this inlet, may go between St. Anastatia's Island and the main to St. Augustin. The tide flows at both ends of the island, on the changes and full days of the moon, at $\frac{1}{2}$ past 7 o'clock.

Cape Canaveral lies S. S. E. 24 leagues from Matanza Inlet; between them lies Mosquito Inlet, or New Smyrna Entrance; it is about N. N. W. $\frac{1}{4}$ W. from Cape Canaveral. It is a bold shore all the way from Matanza Inlet, to the Cape, excepting a rocky shoal, which extends a mile and a half from the shore, to the southward of Matanza Inlet, about 5 miles. From Cape Canaveral some rocky shoals extend east, about 6 leagues: they are about $5\frac{1}{2}$ leagues in breadth, from north to south. The N. E. extremity lies $4\frac{1}{2}$ leagues N. E. $\frac{1}{2}$ E. from the Cape; the S. E. extremity lies S. E. by E. $\frac{1}{4}$ E. $5\frac{1}{2}$ leagues. There are 5 fathoms water near to these shoals, on the north side; on the south side, 4 fathoms; and on the east side, 9 fathoms. The northernmost part of Naranilla Reef bears E. by S. from Cape Canaveral, distant 38 leagues: the nearest part of the bank to Cape Canaveral bears S. E. by E. distant 26 leagues. Memory rock bears S. S. E. $\frac{1}{2}$ E. distant 28 leagues from the Cape, and 25 leagues S. S. E. $\frac{1}{2}$ E; from the easternmost part of the shoals which lie off the Cape.

Ayes, or Hillborough Inlet, lies about 16 leagues S. by E. from Cape Canaveral. The land between them is curved; there are some rocks near the shore in the bight: there are 2, 3, 4, 5, 6 and 7 fathoms water between the Cape and the Inlet. From Hayes, or Hillborough Inlet, to the S. E. part of the shoals which lie off Cape Canaveral, your course is N. by E. and the distance $13\frac{1}{2}$ leagues: there are 10 fathoms water between them. Memory Rock lies 16 leagues E. S. E. from Hillborough Inlet. From Canaveral to Biscaino Isle, the coast lies nearly south, and about 54 leagues distant. From Biscaino Isle to Cape Largo, the coast runs south westerly, and from Largo to Cape Florida, it runs S. by W. and S. S. W.

At the north end of little Bahama Bank, lies *Naranilla Reef*, which is very dangerous, as the flood tide sets in on every part of the end of this bank. About 12 leagues S. by W. from Memory Rock, lies Seal Key: this key lies off the north end of the Bahama Island, which is long and narrow, and rocky from one end to the other, stretching about 23 leagues S. E. by E. and N. W. by W.

A Table of the principal Courses and Distances from Delaware River to Cape Florida.

	Courses.	Leagues.
From the entrance of Delaware River to Chesapeake Bay - - - - -	S. $\frac{1}{2}$ W.	21
Cape May and Cape James, or the Cape of Delaware, lie from each other - - - - -	{ S. W. $\frac{1}{4}$ S. } { N. E. $\frac{1}{4}$ N. }	4 $\frac{1}{2}$
Cape Charles and Cape Henry, or the Capes of Virginia, lie from each other - - - - -	{ S. by W. $\frac{1}{4}$ W. } { N. by E. $\frac{1}{4}$ E. }	5
From Cape Henry to Roanoke Inlet - - - - -	S. $\frac{1}{4}$ E.	22 $\frac{1}{2}$
From Roanoke Inlet to Cape Hatteras - - - - -	S. nearly	16 $\frac{1}{2}$
From Cape Hatteras to the southernmost of Look-out Shoals - - - - -	W. $\frac{1}{2}$ S.	25 nearly
From Cape Look-out Shoals to the southward of the Frying-pan Shoal - - - - -	S. W. by W. nearly	26
From Frying-pan Shoal to the entrance of Santee, or south end of Cape Roman Shoals - - - - -	S. W. by W. $\frac{1}{4}$ W.	17 $\frac{1}{2}$
From Cape Roman Shoals to Charlton Bar - - - - -	W. S. W. $\frac{1}{4}$ W.	18 nearly
From Charlton Bar to St. Helena Sound - - - - -	W. S. W.	9
to Port Royal entrance - - - - -	S. W. $\frac{1}{2}$ W.	17
From St. Helena Sound to the entrance of Savannah River - - - - -	S. by W. $\frac{1}{2}$ W.	6 nearly
From Savannah River to St. Simon's Sound - - - - -	S. by W. $\frac{1}{4}$ W.	20
From St. Simon's Sound to Prince William's Sound, or St. Mary's Inlet - - - - -	S. by W. $\frac{1}{4}$ W.	8
From Prince William's Sound to St. John's River - - - - -	S. by E.	7 $\frac{1}{2}$
From Savannah River to St. Mary's Inlet - - - - -	S. by W. $\frac{1}{2}$ W.	28 $\frac{1}{2}$
to St. John's River - - - - -	S. by W. nearly.	36
to the outermost of Cape Canaveral Shoals - - - - -	S. $\frac{3}{4}$ E.	70
From St. John's River to St. Augustine's Entrance - - - - -	S. by E. nearly.	12
to Cape Canaveral Shoals - - - - -	S. by E. $\frac{1}{4}$ E.	42 $\frac{1}{2}$
From the outermost of Cape Canaveral Shoals to the north end of Maranilla Reef - - - - -	E. S. E. $\frac{1}{4}$ E.	20
Ditto, to Rocky Spring - - - - -	S. $\frac{1}{2}$ E.	33
From Rocky Spring to Fowey Rocks, near Cape Florida - - - - -	S. $\frac{1}{2}$ W.	20 $\frac{1}{2}$
to Wood Island on the east end of Great Bahama - - - - -	E. $\frac{1}{2}$ N.	16
to the Road of Great Isaac - - - - -	E. $\frac{1}{4}$ S.	18 $\frac{1}{2}$
From Fowey Rocks to the anchoring ground south of Bimini - - - - -	E. by S. $\frac{1}{2}$ S.	14 $\frac{1}{2}$

OBSERVATION.

THE water of the Gulf Stream having more heat than the water of the ocean, even in the highest latitudes, you may know when you are gone into, or come out of the Gulf Stream, by this difference of heat; and so great is it, especially in winter, that it has been found, in the above latitudes, to rise and sink the Mercury five degrees.

For a continuation of this navigation refer to Roman's Gulf and Windward Pilot, which is likewise accompanied with a Book of Directions.

NEW

DIRECTIONS FOR SAILING

ALONG

THE COAST OF

NORTH AMERICA.

By GEORGE WALKER.

Part the Third.

Lately added to the preceding Directions.

Sailing Instructions from New York to the Capes of Delaware or Philadelphia.

WHEN over the bar, steer south by the compass, until you get into 15 fathoms water, then your course is W. S. W. distance 42 leagues: if the wind should incline to the southward, steer S. W. but not farther off than 16 fathoms, in which depth you will have the benefit of the current, which sets to the westward as far as the Capes of Philadelphia.

If the wind should be in the north-west quarter, which in general is clear weather, keep no farther off than 10 fathoms; the nearer in shore, the stronger the current, which sets about one mile per hour. The tide of flood runs W. by S. and the ebb E. by N. but you will have no tide farther off than 8 or 9 fathoms.

If you are turning with the wind to the westward, stand no farther off than 18 or 20 fathoms water, as the tail of the Gulf Stream sets to the eastward farther out. You may venture to stand in shore into 6 fathoms, until you are as far to the westward as Hereford, which is a small inlet into the new Jersey Coast, about 29 leagues from Sandy Hook, and 8 leagues N. E. by N. from Cape Henlopen.

Four leagues south from Hereford lies a very dangerous shoal, in length about 3 miles, which was formerly called the *Five Fathoms Bank*, but now on some parts of it there are but 6, 7, or 8 feet water: it is 4 leagues from the shore, and dangerous, as it lies in the fair way. Between it and the coast, you have a good channel of 6 fathoms; the soundings in shore are regular, but you must be careful not to stand too near this shoal, as there are 3 fathoms close to it on both sides.

If you are bound into the Delaware, give Cape Henlopen a birth of a mile and a half, to avoid a reef of rocks called the *Hen and Chickens*, which lies from the pitch of the Cape whereon the Light-house stands S. E. one mile; when there is any sea, these rocks will shew themselves: be careful not to stand too far towards Cape May, as there are several overfalls about half channel over, on which you have only 2 and 2½ fathoms.

The best place to anchor is Old Killn Road. Run up about 3 miles, until you bring the Light house to bear S. E. by E. and Cape May N. E. by N. then you will

will see the buoy on the tail of the sand called the *Brown*: then bring up until you get a pilot. Be careful to keep your eye on the marks, as the flood tide runs so strong to the westward, that it might oblige you to bring up before you can get into a proper roadstead.

From Sandy Hook to the Capes of Philadelphia the soundings are regular, except the fore-mentioned shoal; but the ground you find on your lee is of various sorts. The Jersey shore is very low and sandy, and lies W. S. W. and E. N. E. from the west end of Long Island: But the land to the southward of Cape Henlopen lies S. by E. and N. by W. and is much higher. The variation was half a point west in 1777, and is now about 7 degrees westerly.

From Cape Henlopen, called also Cape James, to the Capes of Virginia.

WHEN Cape Henlopen is bearing N. W. steer S. E. until you get into 15 fathoms water; then your course is S. S. E. in order to clear a dangerous shoal called *Assateak*, which bears from Cape Henlopen S. by E. distance 16 leagues, and lies from the shore 5 leagues, stretching about S. by E. and N. by W. The soundings along shore are gradual. When you get to the southward of this shoal, you will deepen the water two fathoms. I would advise not to come nearer than 10 or 12 fathoms in the night, or in thick weather, for the shore has very great indraughts, which are occasioned by its many inlets: The lead will be of great service all along this coast.

There is another shoal called *Chingoteak*, bearing S. by E. from *Assateak*, distance 12 leagues, and 6 leagues from the land, extending N. N. E. and S. S. W. The course from *Assateak* to clear *Chingoteak* is S. S. E. This shoal being rounded, the course to Cape Charles is S. S. W. $\frac{1}{2}$ W. distance 18 leagues, and when you have run above half that distance, you must keep the lead going every half hour, as there are several banks lying off the Cape, having no more than $2\frac{1}{2}$ and 3 fathoms water. Come no nearer than 7 fathoms, until you are to the southward of the Cape, and when it bears W. N. W. then you are clear of the banks. To know the land about Cape Charles, coming from the northward, observe that it appears round and bluff, with very high trees, much higher than any to the northward.

Cape Henry, when you are to the northward of it, shews itself with a long range of sand hills and straggling trees, as far as you can see to the southward. There is 4 leagues difference of latitude between the two Capes. If you are bound in, bring Cape Henry to bear W. by S. then you will be to the southward of the *Middle Ground*, which lies between the Capes: when running in, steer W. by N. and W. $\frac{1}{2}$ N. giving Cape Henry a birth of two cables length off the shore, and you will have 6, 7, and 8 fathoms, until you are round the Cape. As soon as you come abreast of that Cape, be sure to take your soundings, and of steering W. N. W. about 3 miles, until you bring the Cape to bear S. E. by E. and Cape Charles N. E. $\frac{1}{4}$ N. then you may anchor in $5\frac{1}{2}$ and 6 fathoms in *Lynn Haven Bay*, a little below the shoal called the *Horse-shoe*, which birth is good holding ground.

From Cape Henry to Cape Hatteras.

BRING Cape Henry to bear W. N. W. distance about 4 leagues, and you will have 14 or 15 fathoms water; your course then to clear the shoal of Hatteras is S. S. E. distance 42 leagues. This shoal is very dangerous, being 23 miles from the shore, right off Cape Hatteras: it stretches S. E. by E. and N. W. by N. and there are 15 fathoms almost close to the outside of it. You must be very careful when in, or near the latitude of this Cape, as the gales from the eastward are

more

more severe there than on any other part of the coast, and give very little warning: Their first appearance is hazy weather and small rain; you are then to get an offing as fast as possible, and I have sundry times been obliged in less than an hour to be under a balanced mizen.

The Gulf Stream runs very rapidly, and not less than 4 miles per hour, without the tail of this shoal: Come no nearer to it than 20 fathoms, and when you are abreast of the shoal, in that depth of water, you may see the Cape, if the weather be clear.

Cape Hatteras is very remarkable, being a long narrow point of land, stretching out E. S. E. and W. N. W. and the land to the northward lying north and south: When that Cape bears from the W. by N. to the W. by S. it appears like a round island, with a thicket of high trees on it; but the change of the weather alters the appearance of the land when first you make it all along this coast.

When Cape Hatteras bears W. by N. then you may be sure of being to the southward of its shoal: If you are bound to the southward, and the wind off the land, haul up S. W. by W. about 2 leagues, to prevent the current taking you on the starboard bow; this is often the case with those unacquainted, and some have drifted as far as the Capes of Virginia: I have myself, in a calm, drifted in 24 hours 75 miles difference of latitude.

Note, The Gulf Stream sets nearly N. N. E. as far as the latitude of Cape Hatteras, from thence to the latitude of the Capes of Virginia, about N. E. by N. and then from the Capes of Virginia to the latitude of the Capes of Philadelphia or Delaware E. N. E. from whence it sets nearly east.

Remarks on the sudden dangerous Thunder Storms so frequent in the Summer Season off Cape Hatteras, and on the Southern Coast of America.

THE first appearance of them is a black heavy cloud, the weather sultry, little wind, and variable. I advise at the appearance of these warnings, not to lay to reef, but clew up every sail, except the forefail and foretopmast-stayfail, and your ship will be ready to veer; if you have time to hand the sails clewed up, do it, but it seldom happens that you have, as these gales come on so suddenly. A shocking accident happened to a brigantine in company with me, off Cape Hatteras, in the year 1773: a little before the squall reached them, they attempted to reef, and in the time of reefing the vessel overfet, and all hands perished. The variation was 4 deg. 30 min. west in 1777. Concerning the variation which has been decreasing since that time, consult for this article and the following; the remark, page 33 of the Second Part.

Instructions for sailing from Cape Hatteras to Cape Lookout.

THE course is S. W. distance 42 leagues. There is a very dangerous shoal which lies from Cape Lookout, stretching S. by W. and N. by E. about 6 leagues, and having no more than 5 or 6 feet water on it. Come no nearer than 6 fathoms in day time and clear weather, and not nearer than 10 fathoms in the night or thick weather. Keep your lead going, as it is the best guide all along this coast, on account of the various settings of the tides, occasioned by the numerous indraughts. Cape Lookout may be easily known by a great number of very high ragged-looking trees; the lower part of them appears white and withered, and much higher than any others in sight. You may see the Cape at 8 leagues distance, it lies in latitude 34 deg. 27 min. N.

When

When it bears from you, from W. S. W. to W. N. W. it appears in the form of a hat-crown; when bearing more to the northward, it looks like an island, with a long narrow point stretching N. W. and S. E. Here the tide sets S. W. by W. and N. E. by E. and it flows 10h. 30 min.

From Cape Lookout to Cape Fear.

The course is W. S. W. $\frac{1}{2}$ W. distance 44 leagues. Due south from Cape Fear lies a very dangerous shoal, called the *Frying-pan*. The southernmost part of which is 8 leagues from the Cape. When near the latitude of the Cape, keep a careful man at the mast-head, as you will defery the breakers on the shoal before you see the land, which we call a good land-fall; and if you are bound in, come no nearer than 8 fathoms. I have made the breakers bearing S. W. and I steered S. S. E. which course kept me in the same water until I got to the southward of the shoal; then the water deepened to 10, 12, and 14 fathoms. There is a very great flat all round the south end of this shoal, about 2 or $2\frac{1}{2}$ leagues from the breakers, having 4, 5, and 6 fathoms water on it. When you are round and to the southward of it, you may haul up by your lead to make the land, but come no nearer than 7 fathoms, as the tide of flood sets to the northward within the shoal.

The first land you will see is the *Bald-head*, which is the highest land, and on the east side of the entrance of Cape Fear Harbour: it appears high and round, with reddish sand below the trees. To anchor on the outside of the bar, bring *Bald-head* N. E. and in 8 fathoms water, and you will have good holding ground; but should you bring it any farther to the northward than N. E. you will be in foul ground. If the wind be at N. E. or to the eastward of N. N. E. do not come to an anchor, except you mean to run over the bar, which you cannot do without a pilot, as the sands are so often shifting; nor by any means attempt to get under weigh whilst the tide of flood runs, except you have a pilot to carry you in over the bar. The flood sets N. W. by N. The latitude of the bar is 33 deg. 51 min. N. The flowing at full and change is S. E. by S. and N. W. by N. 9 h. 45 min. The variation was 4 deg. 30 min. W. in 1777.

From Cape Fear to Cape Roman and Charleston Bar.

The course is S. W. distance 16 leagues. There is a shoal which lies off S. S. E. from Cape Roman, in length about 5 leagues, and very dangerous, having only 6 or 7 feet water on it in many places. The soundings all along the outside of this shoal are gradual: You may stand into 6 fathoms in day time and clear weather, but not nearer than 10 fathoms in the night. Cape Roman appears much like Cape Lookout, only the trees are not so thick on it, nor so high.

S. W. from this Cape lies a long flat, in length 10 miles, on some parts of which there are not more than 8 or 10 feet water: The southernmost part of it is called the *North Breaker* of Bull's Inlet; on the other side is a sand called the *South Breaker*, that stretches from the northernmost part of Bull's Island into the sea about $1\frac{1}{2}$ mile.

Between these two sands is the entrance over the bar, on which there are 15 and sometimes 16 feet at high water. *Bull's Island* appears very bluff, and with high red sand hills. The tide rises here about 9 feet; and along the east side of this island there is an inland navigation to Charleston, for small vessels of 8 or 10 feet draught of water.

If you are bound from Cape Roman to Charleston, the course is S. W. by W. distance 14 leagues. Be careful to avoid a shoal called the *Rattle Snake*, S. E. about 8 miles from Spencer's Island, which lies from Sullivan's Island N. N. E. distance 6 miles: come no nearer this shoal than 6 fathoms, as it is almost steep-to on

on both sides. The land about Charleston may easily be known. Coming from the northward, you will descry the New Church Steeple before you can see the Light-house, it being much higher: The Light-house stands on the south side of the Harbour, on what is called the *Coffin Land*; Sullivan's Island forming the north side of the entrance. If you want to bring up outside of the bar, bring the Light-house to bear W. S. W. or the New Church Steeple west, but not nearer than 7 fathoms. The latitude of Charleston Bar is 32 deg. 42 min. N. The tide of flood sets W. S. W. from this to Tybee, which is the entrance of the Harbour of Savannah in Georgia: it flows at full and change 7 h. 30 min. The variation 4 deg. 30 min. west in 1777.

From Charleston Bar to Tybee.

WHEN over the bar, and in 8 fathoms water, the course is S. W. by S. distance 22 leagues. As you come near the latitude of Port Royal Entrance, which is 32 deg. 17 min. N. be careful to avoid a very dangerous shoal called *Martin's Industry*: it lies 4 leagues from the south side of the entrance of Port Royal, which is the north side of Hilton Head, the highest land in sight; come no nearer than 7 fathoms, keeping your lead going, and in the night or thick weather, do not approach nearer than 10 fathoms: the tide of flood sets boldly in. When you get to the southward of Hilton Head, you will see the Light-house which stands on the Island of Tybee, and the southernmost land going into the harbour.

If bound into Savanna, bring the Light-house to bear W. $\frac{1}{2}$ S. and steer W. $\frac{1}{2}$ N. it will bring you over the bar, carrying 3 and 3 $\frac{1}{2}$ fathoms, until you are a little above the northernmost end of Tybee Island: there you will have but 3 fathoms till you run up as far as the south side of Cockspur Island, where you may anchor in 4 and 4 $\frac{1}{2}$ fathoms, good ground. The latitude of Tybee Light-house 31 deg. 58 min N. The flowing at full and change at Tybee Bar S. by E. and N. by W. 11 h. 15 min. The tide of flood sets S. S. W. and the ebb N. N. E. The variation was 4 deg. 30 min. west in 1777.

From Tybee to St. Simons.

BRING Tybee Light-house to bear N. W. in 10 fathoms water; then steer S. by W. distance 14 leagues, to go clear of the shoal of St. Simons, which lies off St. Simons E. S. E. 4 leagues. There are 4 and 5 fathoms close to this shoal, to avoid which, come no nearer than 8 fathoms in the day time, and 12 fathoms in the night or in thick weather. The island of St. Simons is on the north side of the Sound or Harbour of the same name, which lies in latitude 31 deg. 10 min. N. and on the south side of that harbour lies Jekyl Island, on which are remarkable trees appearing like umbrellas, and thence called the Umbrella Trees. On the south side of St. Simon's Island, and on the starboard hand going in, you will see the ruins of an old fort.

The tide of flood sets S. S. W. and the ebb N. N. E. It flows at full and change at St. Simon's Bar E. S. E. and W. N. W. 7 h. 30 min.

From St. Simon's to St. Mary's.

WHEN outside of the bar, and in 8 fathoms water, your course is south, distance 8 leagues: it is all along a bold coast as far as St. Augustine southward. Amelia Island is on the south side of the inlet or harbour of St. Mary's, and on the north side of said island stand the ruins of an old fort. The north end of this island is in latitude 30 deg. 54 min N. and the variation 4 deg. 30 min. W. in 1777.

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Cumberland Island lies on the north side of St. Mary's Harbour; and between these two islands lies Tyger Island, on which you will see clusters of trees, appearing much like houses at a distance.

N. E. When you are outside of the bar, and Tyger Island is bearing W. by N. then bring Amelia Island to bear W. S. W. and Cumberland Island N. W. by W. these are the anchoring marks in 8 fathoms, and good holding ground. This roadstead is open to all easterly winds. There are 16 feet water on the bar at high water; if the wind has blown any time in the N. E. quarter, it will rise 2 or 3 feet more. The flood sets due south from this to St. John's, which is the next harbour to the southward: It flows here 9 h. 45 min.

From St. Mary's to St. John's.

THE course is S. by E. distance 9 leagues to St. John's: In making this place, when bound in to St. Augustin, it appears like a round high bluff, on which is a wooden building like a windmill, called the *Spanish Lookout*. On the north side of the harbour is Talbot Island, in length 5 miles: it is low and full of trees, lying north and south: there are 16 feet water on the bar at high water. The latitude is 30 deg. 32 min. N. At full and change it flows S. E. by S. and N. W. by N. 9 h. 45 min.

From St. John's to the Bay of St. Augustin.

WHEN in 9 fathoms water off the bar of St. John's, the course is S. S. E. distance 11 leagues. The northernmost land of the bay is called *Point Cartel*: When you are as far to the southward as this point, you will see the Island Anastasia, in length 18 miles, and on the south side of the bay, the north side of which has a high white tower, like a light-house, where a look-out is kept: When a vessel appears in sight, a signal is made to the town of St. Augustin, by hoisting their colours, and firing a gun; if the vessel appears to the northward of the bay, and is a three-mast vessel, they hoist an ensign, and hang out on a pole in the form of a triangle, three balls on the north side of the tower; if to the south, the balls are hung out on the south side of the tower; if a two-mast vessel, two balls and a jack hoisted; if a sloop, one ball and a pendant; for a fleet, they fire five guns, and an ensign hoisted. The bar of St. Augustin has no more than 10 feet water on it at high water spring tides, and at low water 5 feet. There is a swash to the northward of the bar with 11 and 12 feet water; but the sand shifting often, and the passage being so narrow and crooked, the pilots seldom attempt it. The latitude of the signal tower is 29 deg. 58 min. N. It flows at full and change S. E. by S. and N. W. by N. 9 h. 45 min. The variation was 4 deg. W. anno 1773.

To anchor in the Bay of St. Augustin.—Observations on the Weather, and on the Gulf Stream. See Part I. p. 18 and 19.

BRING the signal tower to bear S. W. $\frac{1}{2}$ W. and the fort which stands to the northward of the tower W. $\frac{1}{2}$ N. the new barracks will then be open with the northernmost point of Anastasia Island. Then bring up, and you will have 10 fathoms water, and good holding ground: The northernmost land in sight will bear N. W. by N. the southernmost land S. S. E. and you will be near the middle of the bay, it being immaterial which way you cast your ship. But should you be

too far to the northward or southward, there would be danger in casting the wrong way, and more so on the tide of flood, which sets strongly into the bay. If it should be likely to blow from the eastward, do not attempt to get under weigh whilst the tide of flood runs.

From the 1st of November to the last of February, the hardest gales prevail that blow on this coast; and in general from the N. N. E. to the S. S. E. the wind any way easterly comes on very suddenly to a gale during the season above-mentioned; and these gales give but little warning. In the year 1777, I had the charge of his Majesty's ship the *Lively*, and was then at an anchor in St. Augustin Bay, when it came on to blow at E. N. E. and in 15 minutes time I was obliged to slip, and had we not carried fail to the utmost, we should not have cleared the land to the southward. N. B. When the wind backs against the fun, with a small rain, you will perceive the sea to rise before the wind comes; then prepare for a gale, which in general will last 50 or 60 hours. If you should be obliged to cut or slip, carry all the fail you possibly can to get an offing before it increases so as to put you past carrying any fail, which is always the case; and observe that the flood tide setting to the southward, will be of no service to you farther out than 12 fathoms water, when you will be in the southern current until you get into 46 fathoms, which is about 15 leagues from the land. Then you are in the Gulf Stream, issuing out of the Gulf of Florida, and which runs strongly all along the edge of soundings about N. N. E. as far to the northward as the latitude 35 deg. 15 min. Then it sets more easterly about N. E. by N. as far as the latitude 37 deg. from thence as far as the Capes of Delaware or Philadelphia in latitude 38 deg. 50 min. N. its direction is about E. N. E. and from thence the latitude of 38 deg. 50 min. N. it sets away nearly east.

Directions to make a speedy Passage from St. Augustin to New York, and Observations on the Tide along the American Coast.

FROM the Bay of St. Augustin, steering N. E. this course will run you into the Gulf Stream out of soundings: then steer N. E. by N. until you get into the latitude of Cape Hatteras, which is in 35 deg. 8 min. N. then you may haul up more northerly half a point, till you get on soundings in or near the latitudes of the Capes of Virginia. When in 18 or 20 fathoms, and near that latitude, steer N. E. by E. 78 leagues, and look out for the high land of *Neverfink*: it is in latitude 40 deg. 23 min. N. and very remarkable, being the highest land on either side of the entrance of the harbour of New York. When you have nearly made the distance before-mentioned, be careful not to run in the night or thick weather, and come no nearer than 12 or 14 fathoms. To come to in the bay of New York, bring the light-house W. by N. or W. N. W. in 10 fathoms, and the southernmost part of the high land of *Neverfink* S. W. by S. it flows at full and change 7 h. 30 min. The variation was 10 deg. west in 1777.

Note, That all along the southern coast of America, you will find no tide farther out from the shore than 10 or 12 fathoms water; from that depth until the edge of soundings, you will have a current setting to the southward, at the rate of one mile per hour; when out of soundings, you will have the Gulf Stream setting to the N. E. quarter, and the farther you get to the northward, it sets more easterly, but not so strong as before-mentioned; and when you get to the northward of 39 deg. it sets almost due east. The wind blowing any time from the N. E. quarter, occasions the Gulf Stream to run more rapidly to that quarter.

A Table
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A Table of the Latitudes, Time of full Sea on the Full and Change of the Moon, and Setting of the Tide on the Southern Coast of America, from New York to St. Augustin.

Names of Places.	Latitudes.		Point of Flowing.	H. Mir
	deg.	min.		
Sandy Hook (Light-house) New York	40	27 N	S. S. E. and W. N. W.	7 *30
Cape May - - - - -	38	52	S. E. by S. N. W. by N.	9 45
Cape Henlopen - - - - -	38	46	S. E.	9 00
Cape Charles - - - - -	37	10	S. E. S. N. W. N.	9 45
Cape Henry - - - - -	36	57	S. E.	9 00
Cape Hatteras - - - - -	35	8	S. E.	9 00
Cape Lookout - - - - -	34	27	S. S. E. N. N. W.	10 30
Cape Fear - - - - -	33	51	S. E. by S. N. W. by N.	9 45
Cape Roman - - - - -	33	4	S. S. E. N. N. W.	10 30
Bull's Inlet or Harbour - - - - -	32	0	S. E. by E. N. W. by W.	8 30
Charleston Bar - - - - -	32	42	E. S. E.	7 30
Port Royal - - - - -	32	17	E. S. E. W. N. W.	7 30
Tybee Lighthouse - - - - -	31	48	S. by E. N. by W.	11 15
St. Simon's Bar - - - - -	31	10	E. S. E. W. N. W.	7 30
St. Mary's Inlet - - - - -	30	54	S. E. by S. N. W. by N.	9 45
St. John's - - - - -	30	32	S. E. by S. N. W. by N.	9 45
Tower of St. Augustin - - - - -	29	58	S. E. by S. N. W. by N.	9 45

The Setting of the Tide along Shore from New York to St. Augustin.

	Flood.	Ebb.
From the west end of Long Island to Cape May	W. by S.	E. by N.
From Cape Henlopen to Cape Charles - - -	S. by W.	N. by E.
From Cape Charles to Cape Hatteras - - -	S. S. W.	N. N. E.
From Cape Hatteras to Cape Lookout - - -	S. W. by W.	N. E. by E.
From Cape Lookout to Cape Fear - - -	S. W. by W.	N. E. by E.
From Cape Fear to Cape Roman - - -	W. S. W.	E. N. E.
From Cape Roman to Charleston - - -	W. S. W.	E. N. E.
From Charleston to Tybee - - -	W. S. W.	E. N. E.
From Tybee to St. Simons - - -	S. S. W.	N. N. E.
From St. Simon's to St. John's - - -	S. by W.	N. by E.
From St. John's to the Bay of St. Augustin - - -	South.	North.

* See Part I. page 22.

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